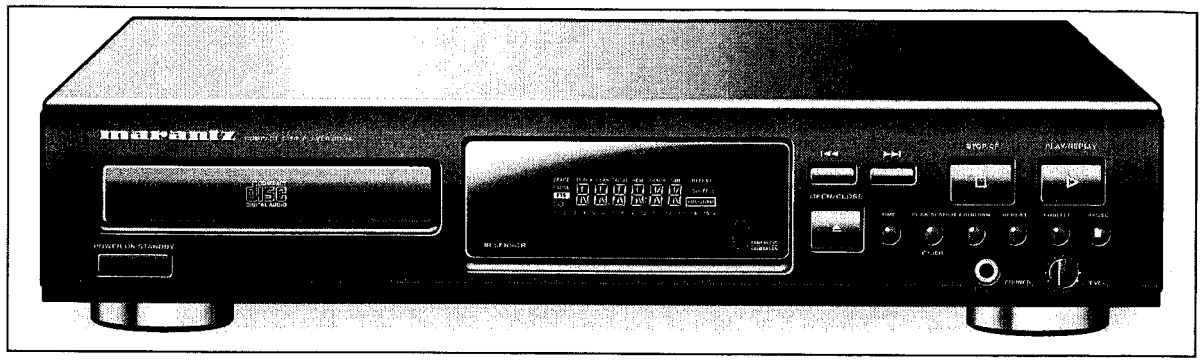
Service Manual

74CD36/01B/02B/05B/07B
74CD46/01B/02B/05B/07B
CD-46F B/U BL
Compact disc player



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marantz®

model CD36 - CD46

PCS 60 970

First issue 1995

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MARANTZ DESIGN AND SERVICE

Using superior design and selected high grade components, MARANTZ company has created the ultimate in stereo sound. Only **original MARANTZ parts** can insure that your MARANTZ product will continue to perform to the specifications for which it is famous.

Parts for your MARANTZ equipment are generally available at our National Marantz Subsidiary or Agent.

MARANTZ EUROPE B.V.
P.O. Box 80002
Building SFF 2
5600 JB Eindhoven
The Netherlands
Phone : +31-40-732241
Fax : +31-40-735578

ORDERING PARTS

Parts can be ordered either by mail or by telex. In both cases, the correct part number has to be specified. The following information must be supplied to eliminate delays in processing your order:

1. Complete address
2. Complete part numbers and quantities required
3. Description of parts
4. Model number for which the part is required
5. Way of shipment
6. Signature: any order form or telex must be signed, otherwise such part order will be considered as null and void.

ADDRESSES

AUSTRALIA
MARANTZ AUSTRALIA
Figtree Driver
Australia Centre
Homebush, N.S.W., 2140
Australia

BELGIUM
MARANTZ EUROPE B.V.
P.O. Box 80002
Building SFF 2
5600 JB Eindhoven
The Netherlands

FRANCE
MARANTZ FRANCE
4 Rue Bernard Palissy
92600 Asnières
France

GERMANY
MARANTZ DEUTSCHLAND
Postfach 3129
49021 Osnabrück
Hakenbusch 3
49078 Osnabrück
Germany

GREECE
ADAMCO ELECTR.SA
P.O.Box 21025
Hippocratus Str. 188
Athens 11471
Greece

ITALY
Marantz Italy SPA
Piazza IV Novembre, 3
20124 Milano
Italy

JAPAN
Marantz Japan Inc.
35-1 SagamiOhno 7-Chome
Sagamihara City,
Kanagawa 228
Japan

KUWAIT
Al Alamiah Electronics
P.O.Box 8196
Salmiah
22052 Kuwait

NETHERLANDS
MARANTZ EUROPE B.V.
P.O.Box 80002
Building SFF 2
5600 JB Eindhoven
The Netherlands

PORTUGAL
COREL
Av. da Liberdade
211-2 Esq.
1250 Lisboa
Portugal

SAUDI ARABIA
Al Alamiah Electronics
P.O.Box 5954
University Street
Riyadh 11432
Saudi Arabia

SPAIN
PHILIPS IBERICA S.A.
Martinez Villergas 2
Apartado 2065
Madrid 28027
Spain

SWITZERLAND
MARANTZ SWITZERLAND
Postfach 8010
Zürich-Müllingen
Switzerland

TRADING
MARANTZ TRADING
P.O.Box 80002
Building SFF 2
5600 JB Eindhoven
The Netherlands

U.K.
MARANTZ HiFi U.K. Ltd.
Kingsbridge House
Padbury Oaks
575-583 Bath Road
Middlesex UB7 OEH
U.K.

U.S.A.
MARANTZ AMERICA INC.
440, Medinah Road
Roselle, Illinois 60172
U.S.A.

All of the above locations are fully equipped to take care of your total service needs or can advice you. Because various countries have differing configuration requirements, it is necessary that you contact the service facility in your particular country. In the event that there is no service location listed for your country, please contact the nearest facility for the necessary assistance.

In case of difficulties, do not hesitate to contact the Technical Department at above mentioned address.

TECHNICAL SPECIFICATIONS

General

1.Mains voltage	/01B	: 110-127V/220-240V
	/02B	: 220V-230V
	/04B(F B)	: 100V
	/05B	: 230-240V
	/06B(U BL)	: 120V
	/07B	: 230-240V
2.Mains frequency		: 50-60 Hz
3.Mains voltage selection only /01B		: Voltage selector 2 positions
4.Power consumption mains	standby	: < 3W
	operated	: < 10W

Remote Control

Internal: RC5

Line output

1.Number of channels		: 2
2.Output voltage		: 2 Vrms ± 3 dB
3.Unbalance left-right		: max. 1 dB
4.Output resistance		: 1 kΩ
5.Frequency response from 20 Hz to 20 kHz		: typ. ± 0.3 dB
		: max. ± 0.6 dB
		: with de-emphasis ± 2 dB
6.Phase non-linearity	from 20 Hz to 16 kHz	: max. 7.0°
	from 16 kHz to 20 kHz	: max. 32°
7.Out-band attenuation		: min. 35 dB above 40 kHz
8.Signal to noise ratio	from 20 Hz to 20 kHz	: typ. 95 dB(min. 90 dB)
	with digital silence	: typ. 110 dB (min. 100 dB)
	A-weighted	: typ. 98 dB
9.Dynamic range (-60 dB)	1 kHz	: typ. -94 dB(min. -90 dB)
	from 20 Hz to 20 kHz	: min. -85 dB
10.Total harmonic distortion + noise		
	1 kHz	: typ. -85 dB(min. -78 dB)
	from 20 Hz to 20 kHz	: min. -75 dB
11.Channel separation	1 kHz	: typ. 95 dB(min. 86 dB)
	from 20 Hz to 20 kHz	: min. 82 dB
	with digital silence detection	: typ. 110 dB(min. 100 dB)
12.Automatic switched deemphasis with time constant 15/50 µs		

Variable headphone (CD46 only)

1.Output voltage	: max. 5 Vrms ± 3 dB
2.Unbalance left-right	: max. ± 1.2 dB
3.Output resistance	: 120 Ω
4.Load impedance range	: 32 Ω to 600 Ω load
5.Output power	: 0 to 30 mW into 30 Ω load
	: 0 to 50 mW into 150 Ω load
	: 0 to 30 mW into 600 Ω load
6.Signal to noise ratio	: typ. 80 dB (1 kHz)
7.Dynamic range	: min. 70 dB (20 Hz -20 kHz)
8.Total harmonic distortion	: min. 60 dB (20 Hz - 20 kHz)
9.Channel separation	: min. 70 dB (1 kHz)
	: min. 65 dB (31.5 Hz - 16 kHz)

Dimensions and weight

1.Apparatus tray closed	: WxDxH 435 x 260 x 90 mm
2.Apparatus tray open	: WxDxH 435 x 405 x 90 mm
3.Weight	: 3 kg

Optical read-out system

1.Laser type	: Semiconductor AlGaAs
2.Wavelength	: 780 nm ± 20 nm
3.Light output (c.w.)	: max. 0.5 mW

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WARNINGS

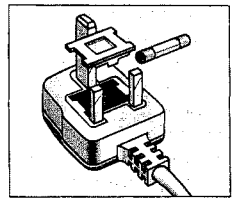
- Do not expose the equipment to rain or moisture.
- Do not remove the cover from the equipment.
- Do not insert anything into the equipment through the ventilation holes.
- Do not handle the mains lead with wet hands.

COPYRIGHT

Recording and playback of some material may require permission. For further information refer to the following:
- Copyright Act 1956;
- Dramatic and Musical Performers Act 1958;
- Performers Protection Acts 1963 and 1972;
- Any subsequent statuory enactments and orders.

Recording is permissible insofar as copyright or other rights of third parties are not infringed.

FITTING A MAINS PLUG *(U.K. only)*



This apparatus is fitted with an approved moulded 13 Amp plug. To change a fuse in this type of plug proceed as follows:

- Remove fuse cover and fuse.
- Fix new fuse which should be a BS1362 5A, A.S.T.A. or BSI approved type.
- Refit the fuse cover.

If the fitted plug is not suitable for your socket outlets, it should be cut off and an appropriate plug fitted in its place.

If the mains plug contains a fuse, this should have a value of **5A**. If a plug without a fuse is used, the fuse at the distribution board should not be greater than **5A**.

NOTE

The severed plug must be disposed to avoid a possible shock hazard should it be inserted into a 13A socket elsewhere.

HOW TO CONNECT A PLUG

The wires in the mains lead are coloured in accor dance with the following code:
BLUE – "NEUTRAL" ("N") and BROWN – "LIVE" ("L").
As these colours may not correspond with the colour markings identifying the terminals in your plug, proceed as follows:

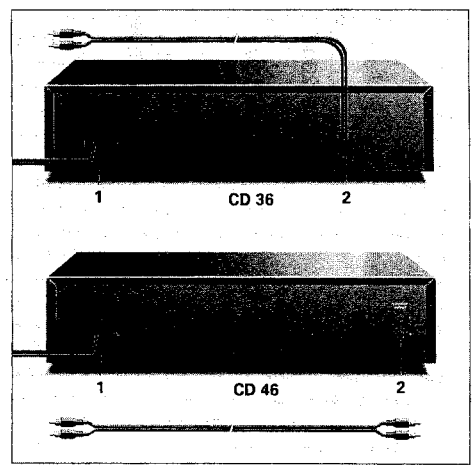
- The BLUE wire must be connected to the terminal which is marked with the letter "N" or coloured BLACK.
- The BROWN wire must be connected to the terminal which is marked with the letter "L" or coloured RED.
- Do *not* connect either wires to the earth terminal in the plug which is marked by the letter "E" or by the safety earth symbol or coloured green or green-and-yellow.

Before replacing the plug cover, make certain that the cordgrip is clamped over the sheath of the lead – not simply over the two wires.

POWER SUPPLY SETTING

- Check that the type plate at the bottom of your player indicates the correct supply voltage.
- If your mains supply voltage is different, consult your dealer or our Service Organisation.
- *Certain versions of this player are equipped with a voltage selector at the bottom of the player which enables you to set the player to the correct mains voltage yourself.*
  Position 120 V: for all mains voltages between 110V and 127 V.
  Position 230 V: for all mains voltages between 220V and 240 V.

CONNECTIONS

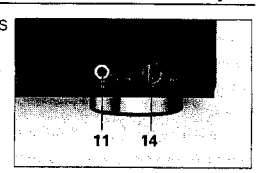


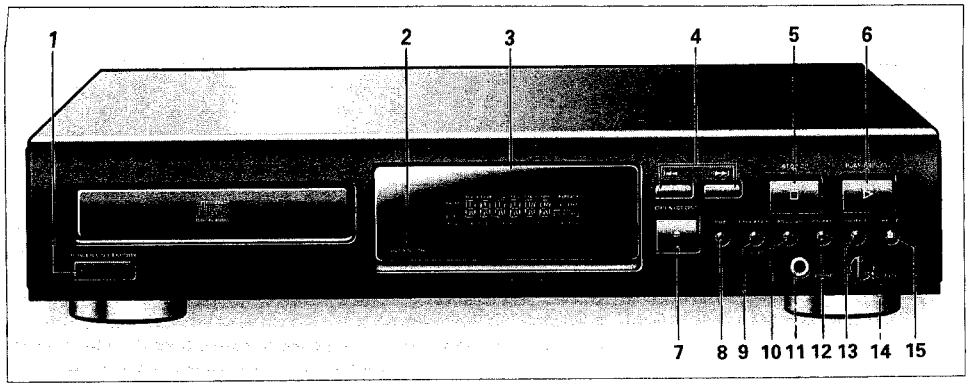
1 Mains connection
- Connect the mains lead to your mains supply.

2 ANALOGUE OUT
Connecting cable to the amplifier
- Insert a red plug into the 'R' socket and the other plug into the the 'L' socket ***(CD 46 only)***.
- Insert the two other plugs into the corresponding sockets of the CD or AUX input of your amplifier.
  You can also use the TUNER or TAPE IN-connection, but ***never*** the PHONO input!

CONNECTING HEADPHONES *(CD 46 only)*

- Connect headphones with a 6.3 mm jack plug to the PHONES socket ***11***.
- The sound level is adjusted with the LEVEL control ***14***.





FRONT OF PLAYER

1 **POWER ON/STANDBY** – Switching on and off.

2 **I**(nfra) **R**(ed) **SENSOR**
Receives the signals from the remote control.

3 **Display** – Informs you about the functioning of the player.

4 ⏮ and ⏭
– Selecting another track.
– Selecting a track to start play with.
– Fast search to a particular passage during play.

5 **STOP/CP**
– Stopping play.
– Erasing a programme (CP = Clear Programme).

6 **PLAY/REPLAY**
– Starting play.
– Returning to the beginning of a track.

7 **OPEN/CLOSE** – Opening and closing the CD compartment. The compartment also closes when the front is pressed briefly.

8 **TIME** – Selecting the time information you want to see.

9 **PEAK SEARCH** – Searching the loudest passage (peak) on a CD or in a programme when making a tape recording.
FADER – Fading in and out during play.

10 **PROGRAM**
– Opening the memory when compiling a programme.
– Storing tracks in a programme.

11 **PHONES** ***(CD 46 only)***
Connecting headphones.

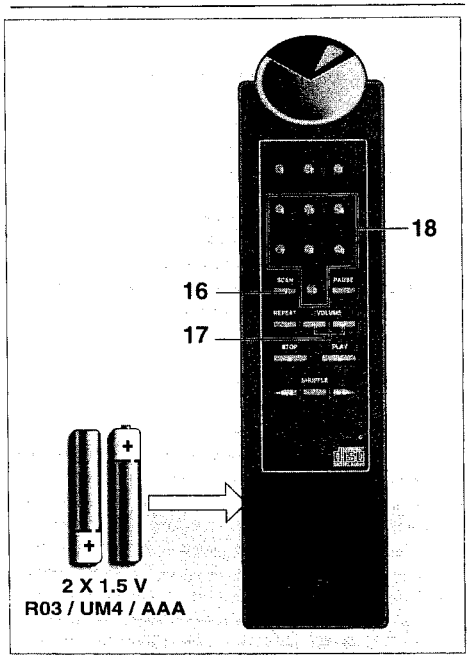
12 **REPEAT** – Repeating play.

13 **SHUFFLE** – Playback in random order.

14 **LEVEL** ***(CD 46 only)*** – Adjusting the volume when listening with headphones.

15 **PAUSE** – Interrupting play.

REMOTE CONTROL



– The life of the batteries of the remote control is around one year. For replacement only use batteries of the type R03, UM4 or AAA.
– The buttons on the remote control have the same functions as the corresponding ones on the player.
– Extra buttons:

16 **SCAN** – Automatically playing the beginning of each track.

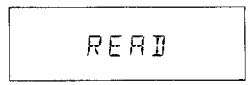
17 **– VOLUME +** – Adjusting the sound level when the player is connected to an amplifier or HiFi system without its own remote control.

18 **1-0 digit keys**
– Selecting another track.
– Selecting a track to start play with.

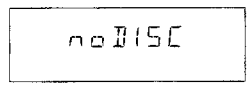
DISPLAY

PAUSE
Lights up when play is interrupted.
(((O
Lights up when the player receives a command from the remote control.
TRACK – Indicates:
– what track is being played;
– the number of tracks on the CD or in a programme.
PEAK
– Flashes when the loudest passage (peak) on a CD or in a programme is being searched.
– Lights up when the loudest passage (peak) has been found.
TRACK TIME
Indicates the elapsed playing time of the track being played.
REM(aining) **TRACK TIME**
Indicates the remaining playing time of the track being played.
TOTAL REM(aining) **TIME**
Indicates the remaining playing time of the CD or a programme.
TOTAL TIME
Indicates the total playing time of the CD or a programme.
REPEAT
Lights up when you repeat a CD or a programme.
REPEAT 1
Lights up when you repeat a track.
SHUFFLE
Lights up when the tracks are played in random order.
PROGRAM
– Flashes when a programme is being compiled.
– Lights up when a programme has been stored in the player memory.
1-15 track number indicator
Shows the number of tracks on the CD.
+
Lights up when there are more than 15 tracks on the CD.

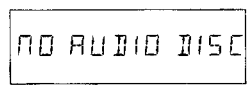
DISPLAY MESSAGES



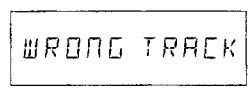
Lights up when the CD's contents list is being scanned.



Lights up when there is no CD in the CD compartment.

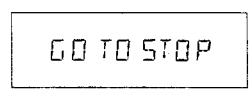


Scrolls on the display when insert a non audio CD (CD-ROM, CD-I or CDV).



Scrolls on the display if you select a non-existent track number.

Scrolls on the display if you try to activate a function for which you must first start play.



Scrolls on the display if you try to activate a function for which you must first stop play.

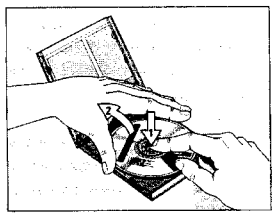
NORMAL PLAYBACK (PLAY/REPLAY)

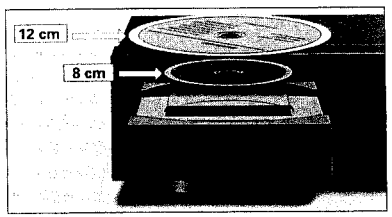
NOTE! *Use only audio CDs; no CD-ROM, CD- I or CDV.*

- *Press POWER ON/STANDBY* ***1*** to switch the player on.
- Open the CD compartment by pressing OPEN/CLOSE ***7***.

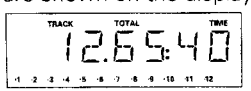
– *OPEN* lights up.

- Insert an audio CD, ***printed side up***, and close the compartment by pressing OPEN/CLOSE ***7***.



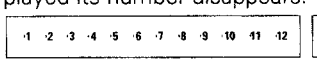


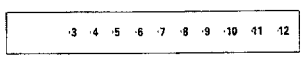
– *CLOSE* lights up, followed by *READ*. The number of tracks and the playing time of the CD are shown on the display.



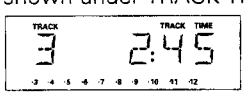
- Press PLAY/REPLAY ***6*** to start play.
  You can also press PLAY/REPLAY immediately after inserting the CD; the compartment then closes automatically.
  You can also close the CD compartment by pressing its front; playback will then start automatically.

– The number indicator shows how many tracks are on the CD; when a track has been played its number disappears.





– The track being played is always shown under TRACK and its elapsed playing time is shown under TRACK TIME.

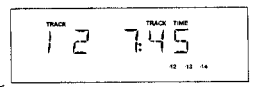


– Play will stop after the last track.

- Press POWER ON/STANDBY ***1*** to switch the player off.

You can interrupt playback by pressing PAUSE ***15*** ; PAUSE then lights up.
Press PLAY/REPLAY ***6*** to restart; if you *first* press PAUSE again and *then* PLAY/REPLAY, the current track starts again from the beginning.
You can also restart play by pressing SCAN ***16*** *(on the remote control)* or SHUFFLE ***13***.
If you press PLAY/REPLAY *during play*, the current track starts again from the beginning.
You can stop playback by pressing STOP/CP ***5*** or OPEN/CLOSE ***7***.

SELECTING ANOTHER TRACK (|◄◄ ►►|)



- Press ►►| ***4*** or |◄◄ ***4*** *(less than 0.5 seconds)* untill the desired track number appears under TRACK.

– The music stops and a moment later the selected track begins to play.

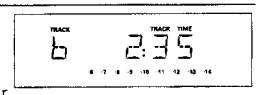
You can also enter the number by using the 1-0 digit keys ***18*** *(on the remote control)*.
Numbers consisting of two figures must be keyed in ***within 2 seconds***.

SEARCHING FOR A PASSAGE (|◄◄ ►►|)

- Hold |◄◄ ***4*** down to search backwards to the beginning.
- Hold ►►| ***4*** down to search forwards to the end.

The searching speed is determined by how long a key is pressed:
– the first 2 seconds fairly slowly, with sound;
– then at the maximum speed, with no sound.
If you reach the end of the last track and release ►►|, play will resume a few seconds before the end of the CD.

STARTING WITH A PARTICULAR TRACK (|◄◄ ►►|)



- Press ►►| ***4*** or |◄◄ ***4*** *(less than 0.5 seconds)* untill the desired track number appears under TRACK.
- Press PLAY/REPLAY ***6***.

– Play starts from the selected track.

You can also enter the number by using the 1-0 digit keys ***18*** *(on the remote control)*.
Numbers consisting of two figures must be keyed in ***within 2 seconds***.
In this case you don't have to press PLAY/-REPLAY; play will automatically start from the selected track.

PLAYING THE CD IN RANDOM ORDER (SHUFFLE)

- Press SHUFFLE ***13*** before or during play.

– If the CD compartment was open, it will now close.

– SHUFFLE lights up and all the tracks are now played in a random order.

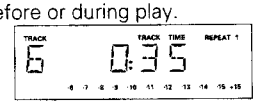
- Press SHUFFLE again if you wish to return to normal play.

If you press |◄◄ ***4***, you will return to a track which has already been played.
If you press ►►| ***4***, you will select any one of the following tracks.
If you press REPEAT ***12***, *twice* the tracks will be repeated in a different order each time, although the first track played will always be the same.

REPEATING PLAY (REPEAT)

Repeating a track:

- Press REPEAT ***12*** before or during play.

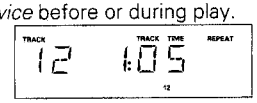


– REPEAT 1 lights up; the track will now be repeated continuously.

- Press REPEAT *twice* to stop the track being repeated.

Repeating the CD:

- Press REPEAT ***12*** *twice* before or during play.

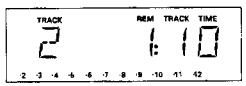


– REPEAT lights up; the CD will now be repeated continuously.

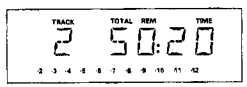
- Press REPEAT again to stop the CD being repeated.

CALLING UP OTHER TIME INFORMATION (TIME)

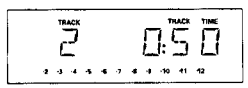
- Press TIME ***8*** whenever you want to know the remaining playing time of the track being played (REM TRACK TIME).



- Press TIME again if you wish to know the remaining playing time of the entire CD (TOTAL REM TIME).



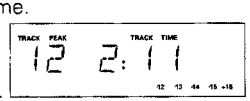
- Press TIME again if you wish to return to the elapsed playing time indication of the current track (TRACK TIME).



SEARCHING THE LOUDEST PASSAGE (PEAK SEARCH)

- *In STOP mode,* press PEAK SEARCH ***9***.
- PEAK starts flashing and the CD or the programme will now be scanned for the loudest passage (the peak).

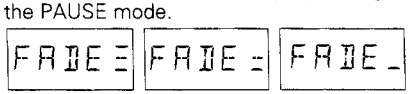
- The display shows the track being scanned and its elapsed playing time.
- When the loudest passage has been found it will be repeated continuously (from 2 seconds before the peak until 2 seconds after the peak)



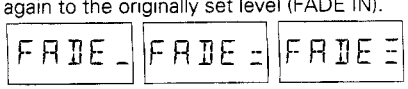
- You can now adjust your recording device.
- You can stop the search by pressing STOP/CP ***5*** or OPEN/CLOSE ***7***; if you press PLAY/REPLAY ***6***, the CD or the programme will be played from the beginning.

SETTING THE FADE- IN AND FADE-OUT TIME (FADER)

- *During play* press FADER ***9***.
- The sound level will now gradually decrease (FADE OUT), after which the player will go into the PAUSE mode.



- Press FADER again.
- Play continues and the sound level will increase again to the originally set level (FADE IN).

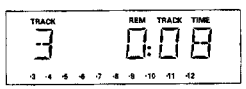


NOTE!

The following functions can only be operated using the remote control.

SCANNING A CD (SCAN)

- Press SCAN ***16*** before or during play.
- If the CD compartment was open, it will now close.
- *SCAN* lights up for 2 seconds and the first 10 seconds of each track are played in turn; 10 seconds are counted down each time under REM TRACK TIME.



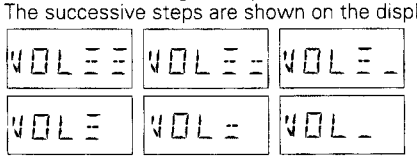
- When the player reaches a track which you wish to hear in full, press SCAN again or PLAY/REPLAY ***6***.

ADJUSTING THE SOUND LEVEL (– VOLUME +)

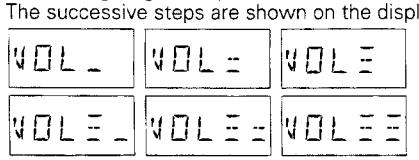
NOTE!

- Use the – VOLUME + keys only if the player is connected to an amplifier or HiFi system *without* its own remote control.
- The setting chosen with – VOLUME + will be cancelled when the player is switched off.

- Hold – VOLUME ***17*** pressed down.
- *VOL* lights up; the output signal from the player will now decrease gradually.
- The successive steps are shown on the display.



- Release the key as soon as the required sound level is obtained.
- Hold VOLUME + ***17*** pressed down.
- *VOL* lights up; the output signal will now increase again gradually to the maximum level.
- The successive steps are shown on the display.

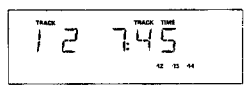


- Release the key as soon as the required sound level is obtained.

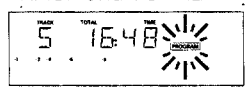
STORING A PROGRAMME (PROGRAM and ⏮ ⏭)

You can store 30 tracks from each CD in any required sequence in a programme.
FULL lights up if you exceed the maximum of 30 tracks.
The 1-0 digit keys ***18*** on the remote control *cannot* be used to select tracks when compiling a programme.

- In STOP mode, press PROGRAM ***10*** to open the memory.
- *PROGR* lights up and PROGRAM starts flashing.
- Press ⏭ or ⏮ ***4*** *(less than 0.5 seconds)* untill the first desired track number appears under TRACK.



- Press PROGRAM ***10*** again.
- The track number has now been stored in the player's memory.
- Select the other track numbers required and store each track by pressing PROGRAM.
- The number of tracks and the playing time of your programme will be shown under TRACK and TOTAL TIME.



- The track number indicator always shows which numbers have been stored.

PLAYING THE PROGRAMME (PLAY/REPLAY)

- Press PLAY/REPLAY ***6***.
- Playback starts with the first number of the programme.

All keys (except PROGRAM ***10*** and PEAK SEARCH ***9***) can be used during programmed play.
Search for a particular passage is only possible within the track being played.

ERASING A PROGRAMME (STOP/CP or OPEN/CLOSE)

During play:

- Press OPEN/CLOSE ***7*** or STOP/CP ***5*** *(twice).*

In STOP mode:

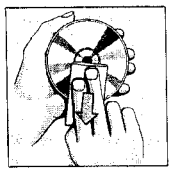
- Press OPEN/CLOSE ***7*** or STOP/CP ***5*** *(once).*

- The programme has now been erased.

MAINTENANCE

The CDs

- Never write on the printed side of a CD.
- *Do not attach any stickers to the CD.*
- Keep the shiny surface of the of the disc clean.
  Use a soft lint-free cloth and always wipe the disc in a straight line from centre to edge.



- Never use cleaning agents for conventional records.
- Detergents or abrasive cleaning agents should not be used either.

The player

- A chamois leather slightly moistened with water is sufficient for cleaning the player.
- Do not use cleaning agents containing alcohol, spirits, ammonia or abrasives.

RECYCLING

Please observe the local regulations regarding the disposal of packing materials, exhausted batteries and old equipment.

1. All redundant packaging material has been omitted. We have done our utmost to make the packaging easy separable into three mono-materials:
   - cardboard (box)
   - expandable polystyrene (buffer)
   - polyethylene (bags, protective foam sheet)
2. Your set consists of materials which can be recycled if disassembled by a specialized company.
3. Do not dispose of exhausted batteries with your household waste.

TECHNICAL DATA

Typical Audio Performance

Frequency range:.....20 Hz - 20 kHz
Amplitude linearity: .....0.3 dB (20 Hz - 20 kHz)
Phase linearity:.....4° (20 Hz - 20 kHz)
Dynamic range: .....90 dB (1kHz)
Signal-to-noise ratio:.....90 dB (1 kHz,)
Channel separation:.....90 dB (1kHz)
Total harmonic distortion:.....0.003% (1kHz)
Audio output level: .....2 Vrms
Impedance PHONES socket ***(CD 46 only)***:
.....30 - 600 ohms

Power supply

Mains voltage and frequency:
see the type plate on the rear of the player
Power consumption:.....< 10 W approx.
Safety requirements:.....IEC 65

Cabinet

Material/finish:.....metal and polystyrene
Dimensions (w x h x d): .....435 x 90 x 300 mm
Weight:.....4 kg approx.

Subject to modification

This Compact Disc player complies with radio interference requirements as laid down in EC regulations.

If a fault occurs, run through the points listed below before taking your player for repair.
If the fault remains, try to clear it by switching the player off and on again. If this also fails to help, consult your dealer.
Under no circumstances should you repair the player yourself as this will invalidate the guarantee!

SYMPTOM	POSSIBLE CAUSE	REMEDY
– Playback of the CD does not start or interruption of playback.	– The CD has been loaded upside down. – No CD inserted. – The CD is badly scratched or dirty. – Moisture condensation on the lens.	• Reload the CD, label side up. • Insert a CD, label side up. • Clean the CD with a soft, lint-free cloth. • Leave the CD player in a warm environment until the moisture evaporates.
– Sound skips (at the same part).	– The CD is dirty.	• Clean the CD with a soft, lint-free cloth.
– The CD skips tracks.	– The CD is damaged or dirty.	• Replace or clean the CD.
– Playback does not start from the first track.	– PROGRAM or SHUFFLE activated.	• Switch off SHUFFLE or clear programme.
– No sound or bad sound.	– Loose or wrong connections. – Strong magnetic fields near the CD player.	• Check connections. • Find another place for the unit or change connections.
– No sound or bad sound on headphones ***(CD 46 only)***.	– Level control set to – position. – Headphones plug is dirty.	• Set level control • Clean plug.
– Remote control does not function.	– Batteries are empty.	• Replace the batteries.
– Remote control commands are not properly received.	– The distance between remote control and CD player is larger than 10 metres.	• Reduce the distance between remote control and CD player.

(GB) WARNING

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools also at this potential.

ESD

(NL) WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen. Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

(F) ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).
Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.
Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

(D) WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegen elektrostatische Entladungen (ESD).
Unsorgfältige Behandlung bei der Reparatur kann die Lebensdauer drastisch vermindern. Sorgen sie dafür, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind. halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

(I) AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione.
Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

(GB)

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

(D)

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden für Reparaturen sind Original-Ersatzteile zu verwenden.

(NL)

Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde worden toegepast.

(I)

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati pezzi di ricambiago identici a quelli specificati.

(F)

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

CAUTION INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.
VARO! AVATTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASER SÄTTEILYLLE ÄLÄ KATSO SÄTEESEN.
VARNING OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD BETRAKTA EJ STRÅLEN.
ADVERSEL USYNLIG LASERSTRÅLING VED ÅBNING. UNDGÅ UNSAETTELSE FOR STRÅLING.
DANGER INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM.
VORSICHT UNSICHTBARE LASERSTRAHLUNG WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.

SHOCK, FIRE HAZARD SERVICE TEST:

CAUTION: After servicing this appliance and prior to returning to customer, measure the resistance between either primary AC cord connector pins(with unit NOT connected to AC mains and its Power switch ON), and the face or Front Panel of product and controls and chassis bottom.
Any resistance measurement less than 1 Megohms should cause unit to be repaired or corrected before AC power is applied, and verified before return to user/customer.
Ref. UL Standard NO.1492.

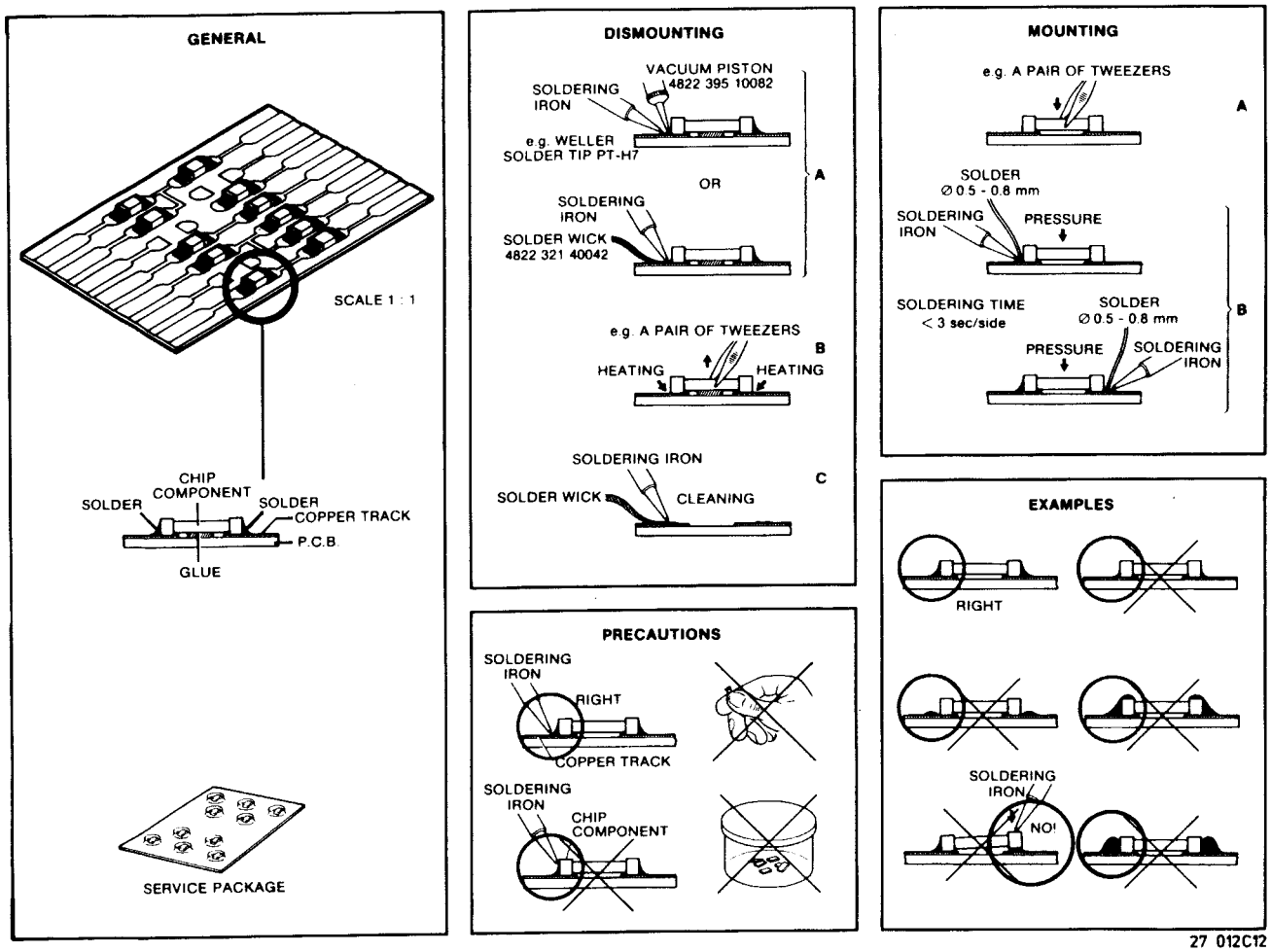
NOTE ON SAFETY:

Symbol ⚠ Fire or electrical shock hazard. Only original parts should be used to replace any part marked with symbol ⚠. Any other component substitution(other than original type), may increase risk or fire or electrical shock hazard.

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne"

SERVICING HINTS

In the set chip components have been applied. For disassembly and assembly of chip components see the figure below.



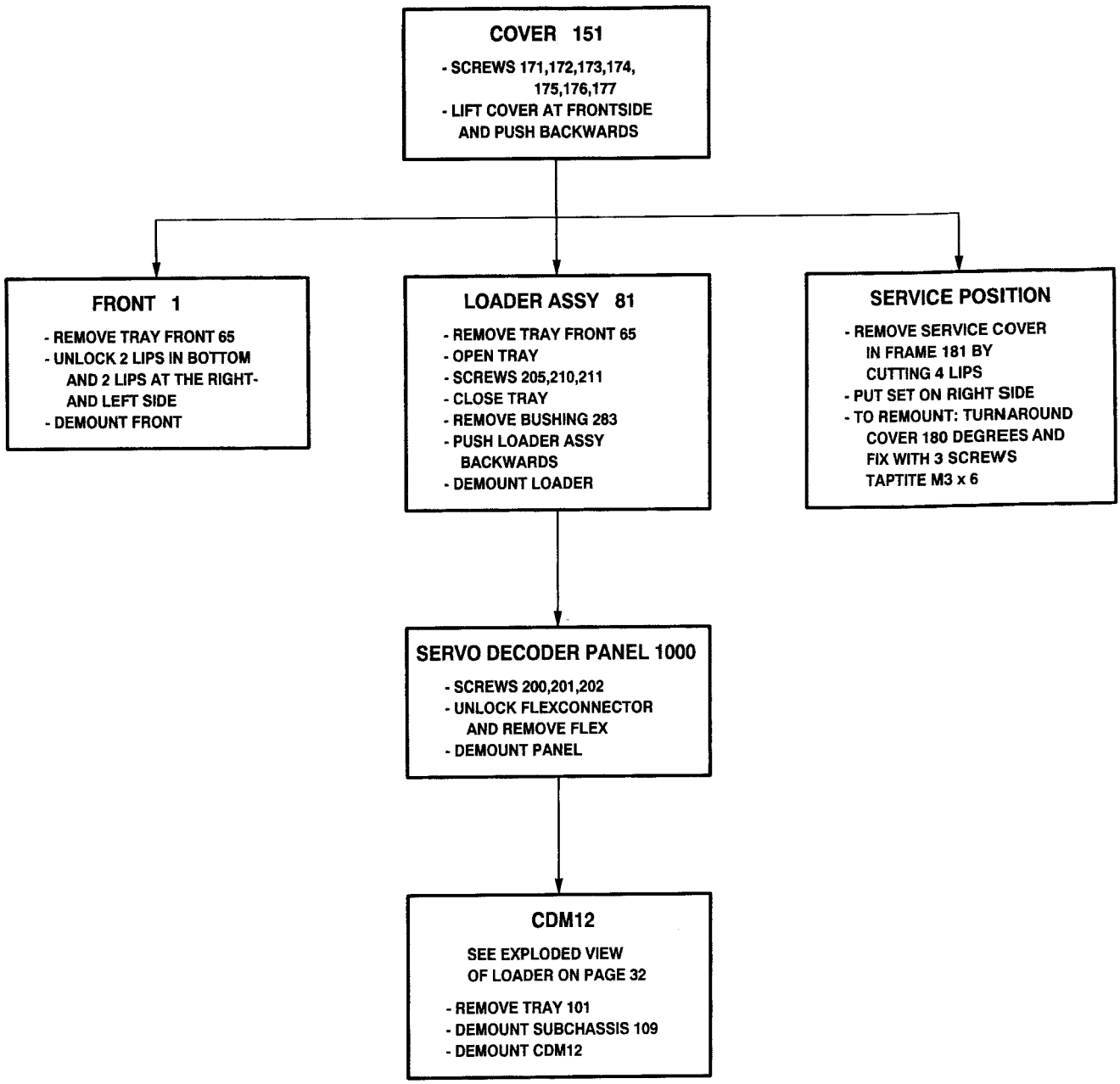
27 012C12

SERVICE TOOLS

Audio signals disc	4822 397 30184
Disc without errors(SBC444) +	
disc with DO errors,black spots and fingerprints(SBC444A)	4822 397 30245
Disc(65 min 1 kHz) without no pause	4822 397 30155
Max. diameter disc(58.0 mm)	4822 397 60141
Torx screwdrivers	
Set(straight)	4822 395 50145
Set(square)	4822 395 50132
13th order filter	4822 395 30204

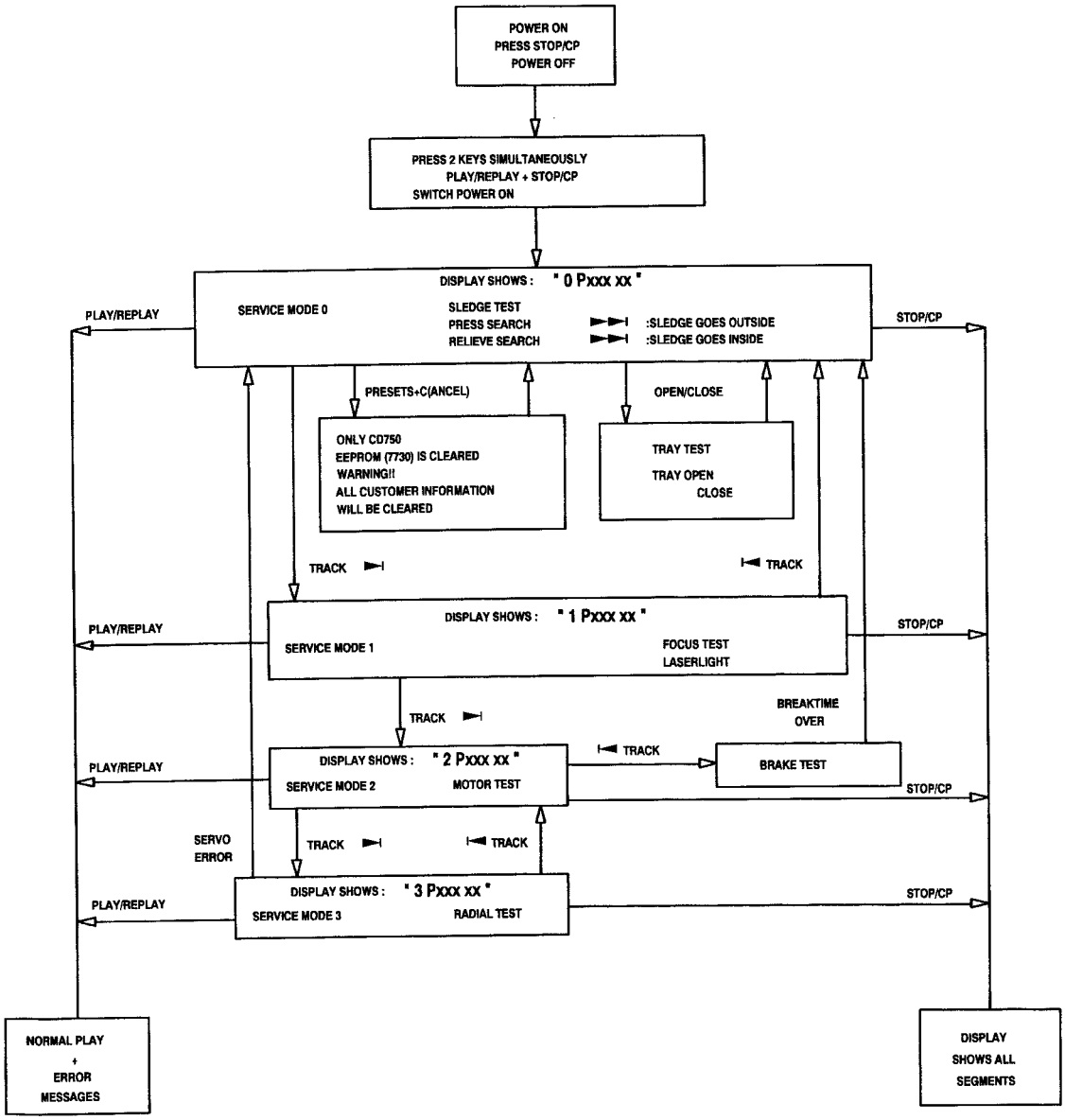
DISMANTLING INSTRUCTIONS

OPEN EXPLODED VIEW ON PAGE 33


COVER 151
- SCREWS 171,172,173,174, 175,176,177
- LIFT COVER AT FRONTSIDE AND PUSH BACKWARDS
FRONT 1
- REMOVE TRAY FRONT 65
- UNLOCK 2 LIPS IN BOTTOM AND 2 LIPS AT THE RIGHT- AND LEFT SIDE
- DEMOUNT FRONT
LOADER ASSY 81
- REMOVE TRAY FRONT 65
- OPEN TRAY
- SCREWS 205,210,211
- CLOSE TRAY
- REMOVE BUSHING 283
- PUSH LOADER ASSY BACKWARDS
- DEMOUNT LOADER
SERVICE POSITION
- REMOVE SERVICE COVER IN FRAME 181 BY CUTTING 4 LIPS
- PUT SET ON RIGHT SIDE
- TO REMOUNT: TURNAROUND COVER 180 DEGREES AND FIX WITH 3 SCREWS TAPTITE M3 x 6
SERVO DECODER PANEL 1000
- SCREWS 200,201,202
- UNLOCK FLEXCONNECTOR AND REMOVE FLEX
- DEMOUNT PANEL
CDM12
SEE EXPLODED VIEW OF LOADER ON PAGE 32
- REMOVE TRAY 101
- DEMOUNT SUBCHASSIS 109
- DEMOUNT CDM12

HAS1124
9345

SERVICE TEST PROGRAM



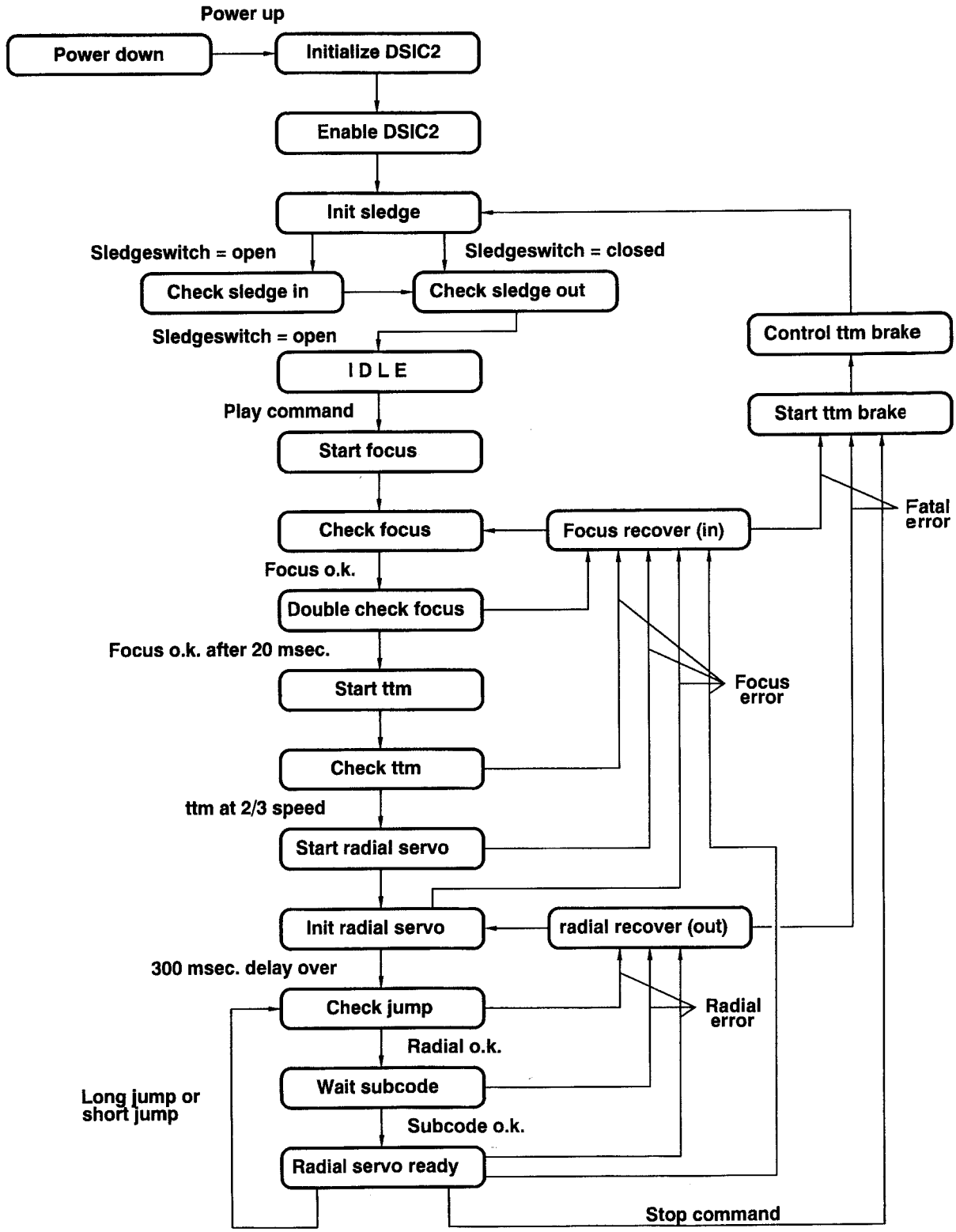
ERROR MESSAGES

- "SLEDGE ERROR"
- "FOCUS ERROR"
- "RADIAL ERROR"
- "MOTOR ERROR"
- "EEP ER"
- "EEP OK"

HAS1120
9342

Pxxx = PROGRAM OF MICROPROCESSOR
xx = VERSION OF PROGRAM

CDM 12.1 start up diagram.



FAULT FINDING GUIDE CDM 12.1

Main Fault Finding Guide CDM 12.1 System

Listen to kind of "scratching sound" while slowly turning the disc by hand.

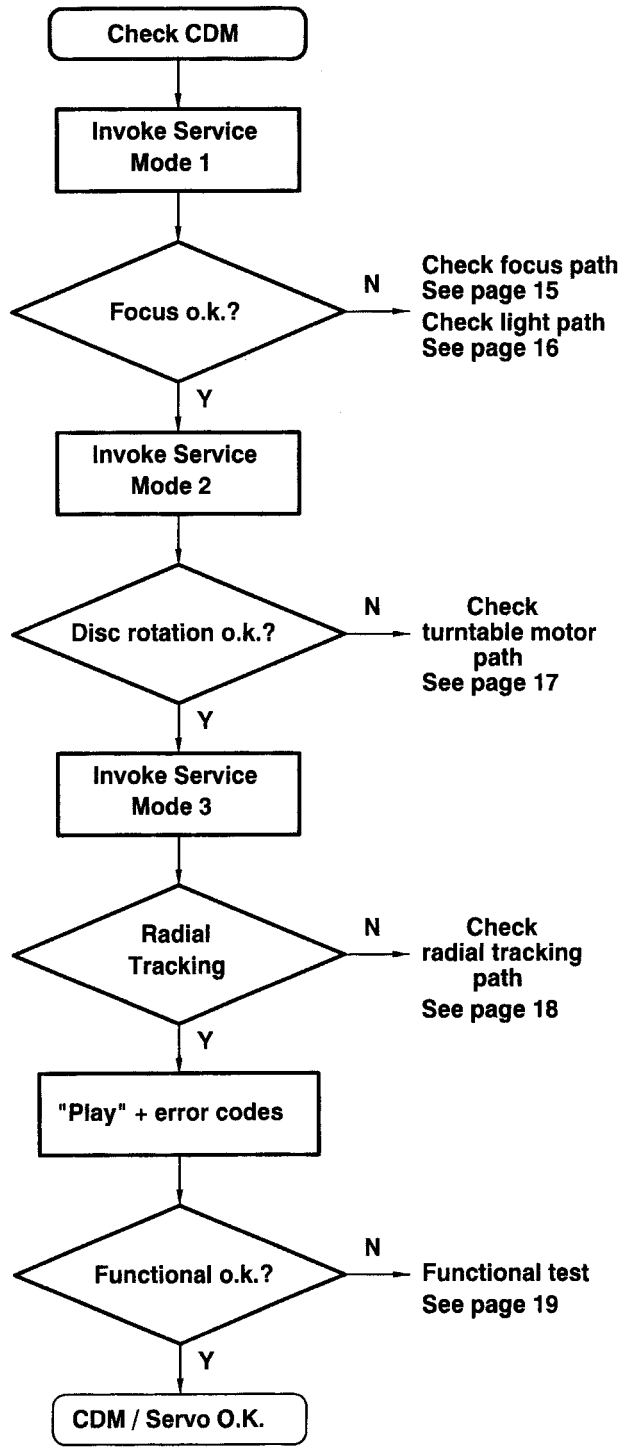
Disc is turning clock wise at normal speed.

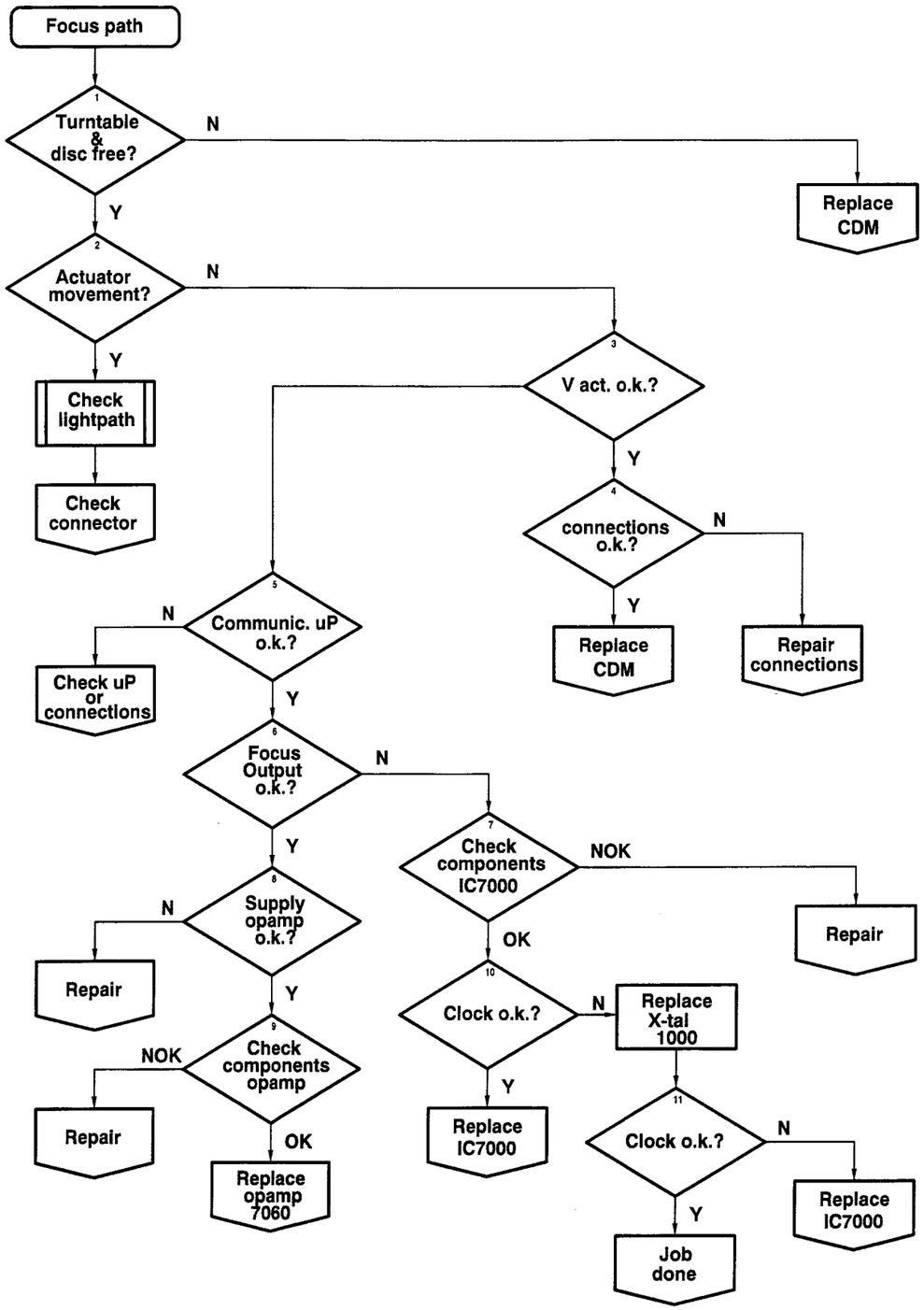
Activity on RAD+ (pin 4 connector 1052)

*After "play" starts at track 1 at time 0:00.
*Go to outer track and start again at time 0:00 after max. 6 seconds.

*Try search function.

*When going from "Pauze" to "play" music has to restart at the same place.



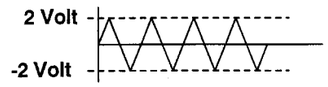


15

1)-Turntable and disc free?
Audible and visible control.

2)-Actuator movement?
Visual control.

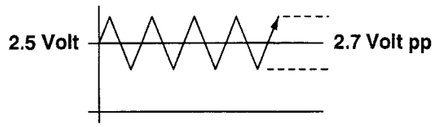
3)-Signals on actuator o.k.?
Triangle wave without disc.
See fig 1.



4)-Connections to actuator o.k.?
Check flex connector pin 2 and 3.

5)-Communication uP <-> IC7000.
SIDA activity (pin 27 of IC7000).

6)-Focus output o.k.?
See fig 2.
Measure with an 10k/3n3 low-pass filter.



7)-Components o.k.?
Check components R3010,R3011
C2012,C2013
X-tal 1000

8)-Power supply for opamp o.k.?
Check components R3006,R3007
C2008,C2009,C2071,C2074

9)-Check components o.k.?
Check components R3074,R3075,R3076,R3077
R3078,R3079
C2075,C2076

10) & 11)-Pin 17 of IC7000: a frequency of 8.46MHz?

WARNING ! ! ! LASER DAMAGE ! ! !

For measurements on the laser (flexconnector pin 1052-6), certain conditions are absolutely necessary for precaution of laser damage.

The instruction and sequence for measuring laser current is as follows:

-turn off mains power.
-wait for > 1 second
-connect a multimeter (high input impedance, not grounded accross resistor 3022. (*)
-turn on mains power and go to play mode.
-reading of measurement value (current = reading/4R7) (**)
-go to stop and turn off mains power.
-disconnect the multimeter.

* In case of a laser voltage measurement, connect the multimeter accross elcap 2025, using the same procedure as mentioned above.

* * If current is > 95 mA, you can be sure that the laser is defect;
If the current is increasing during reading (within +/- 10 seconds), you can be sure that the laser is severely damaged.

* 1)-Laser supply o.k.?
Voltage accross C2025: 4...5V

* * 2)-Laser current o.k.?
Voltage accross R3022: 150...450mV

3)-Lens clean?
Visual control. Check for dust,grease.
Take attention for the blue coating.

4)-Check inputs.
Switch back to service mode 0.
Connect a 2.4 MOhm resistor from
1052 - 9 to 5V: Voltage on pin 5 of IC7000 < 50mV.
1052 - 10 to 5V: Voltage on pin 6 of IC7000 < 50mV.
1052 - 12 to 5V: Voltage on pin 7 of IC7000 < 50mV.
1052 - 11 to 5V: Voltage on pin 10 of IC7000 < 50mV.
1052 - 8 to 5V: Voltage on pin 11 of IC7000 < 50mV.

5)-Diodes o.k.?
Use IR LED of remote control.
A half sine wave must be measured on the diodes (on pin 8,9,10,11,12 of conn. 1052) in the 10mV range.

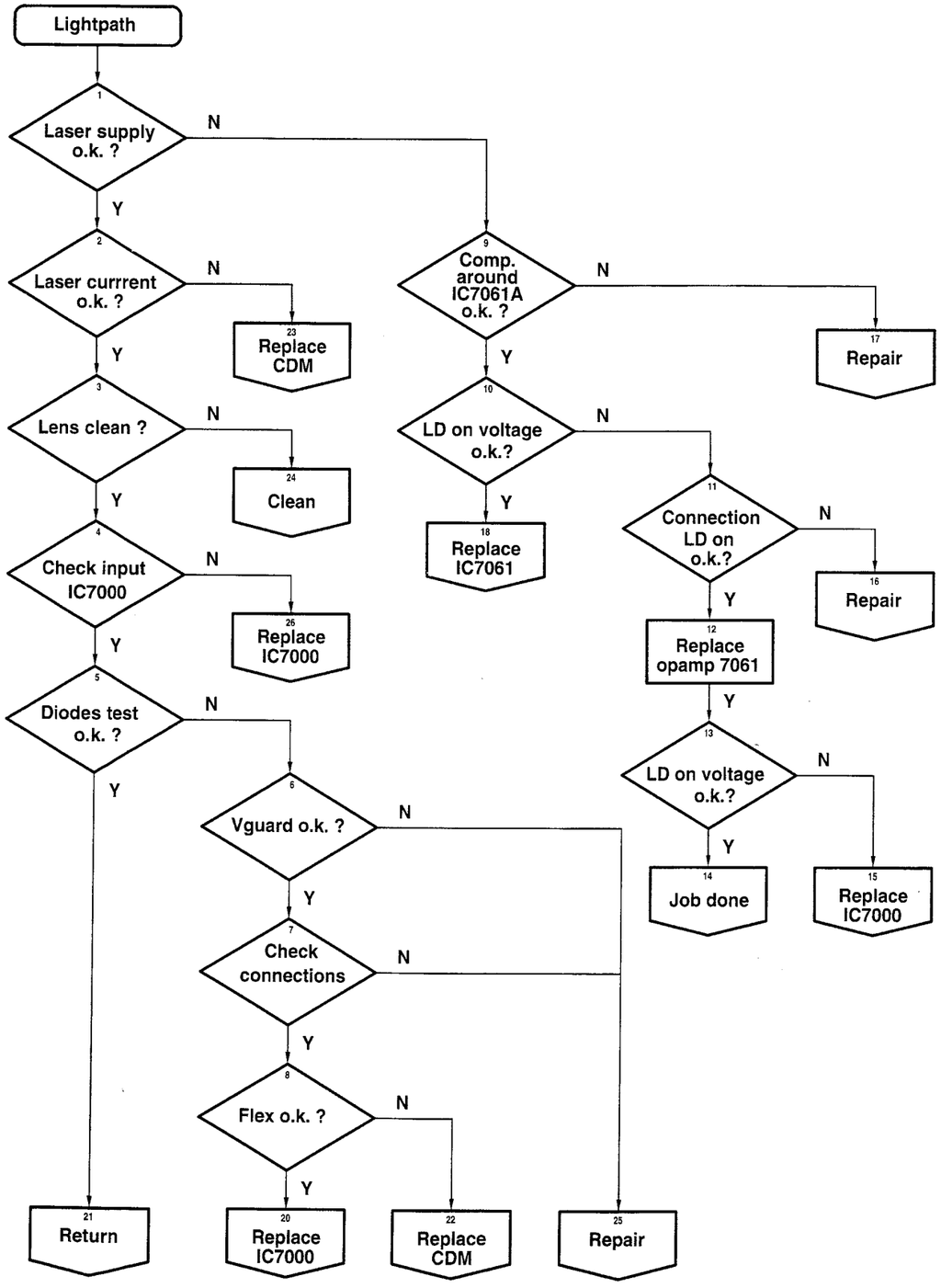
* 6)-V guard o.k.?
Voltage accross C2025: 4...5V

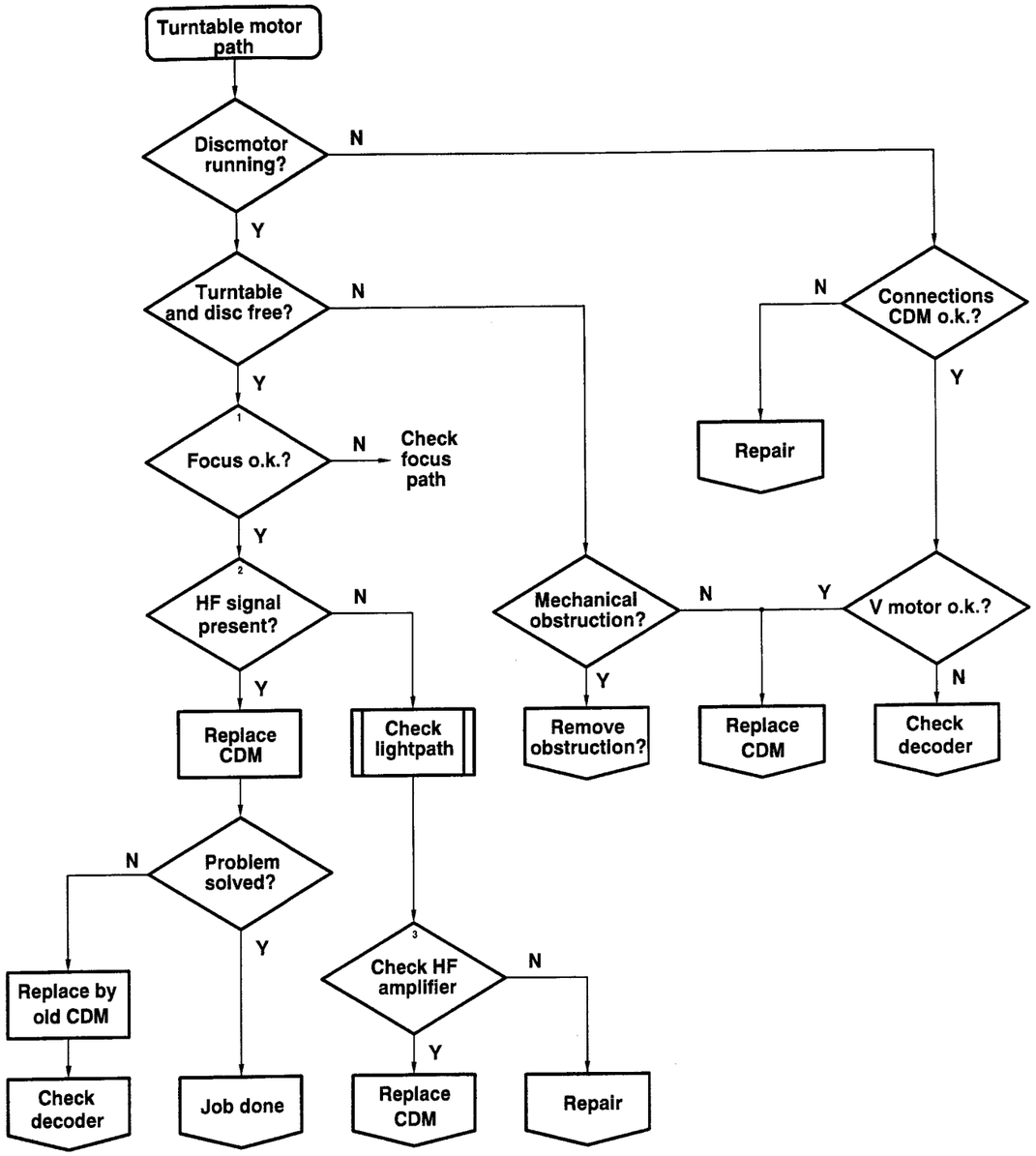
7)-Check connections between main PCB and CDM

8)-Flex o.k.?
Measure diode functions on CDM-flex

9)-Check components around IC7061
R3022,R3021,R3020
C2025,C2060,C2064

10)-LD ON voltage o.k.?
Measure on pin 2 of IC7000:4...5V.





17

1)-Still in focus (focus o.k.?).
Voltage at pin 9 of connector 1052 > 15mV.

2)-HF-signal present.
VHFI (R3048) > 900mV pp. (testpoint 65).

3)-Check HF-amplifier.

* Sypply 5V?

* Testpoint 17=1.4...1.9V DC?

* VHFI DC =2.9...3.6V?

4)-V motor o.k.?

V motor < 2V: replace CDM.
V motor > 2V: check decoder part.

1)-Radial tracking o.k.?
No OTD (testpoint 67) activity.

2)-Check driver 7060A.
Supply: C2071,C2074.
Components: C2067,C2068,C2069,R3068,R3069,R3070,R3071,R3072,R3073.

3)-Check connections radial actuator.
Switch power off.
Measure impedance of 18 Ohm(+/-20%) between pin 1 and pin 4 of connector 1052.

4)-Check impedance on flex.
Power off.
Disconnect CDM-flex.
Measure impedance of 18 Ohm(+/-20%) between pin 1 and pin 4 of connector 1052.

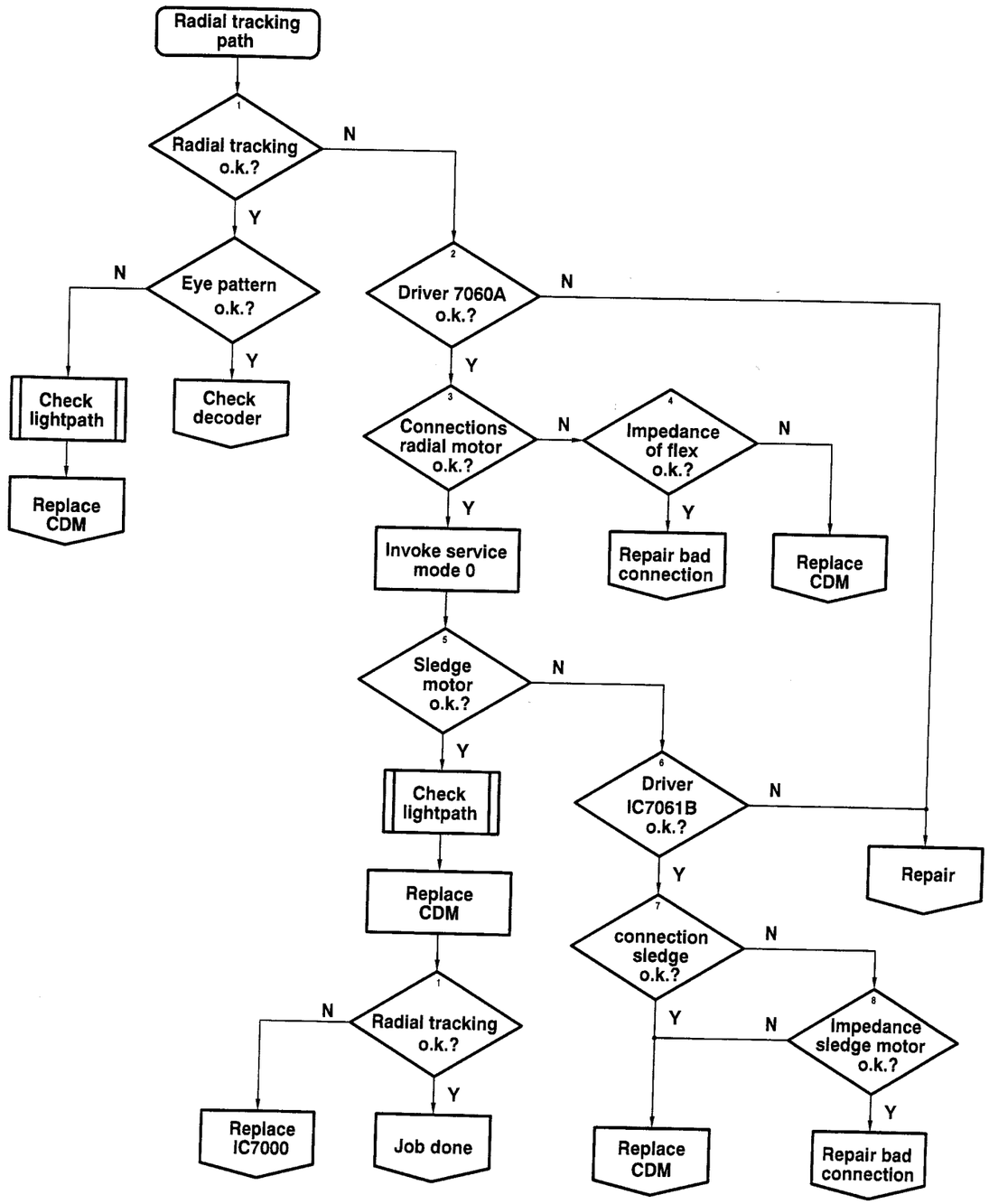
5)-Test sledge.
Power on.
Invoke service mode 0.
Move sledge out (whith search forward key).
Sledge moves to init position after releasing key.
Not o.k. if sledge doesn't move,doesn't reach the outer position or makes a ratling noise at the inner side.

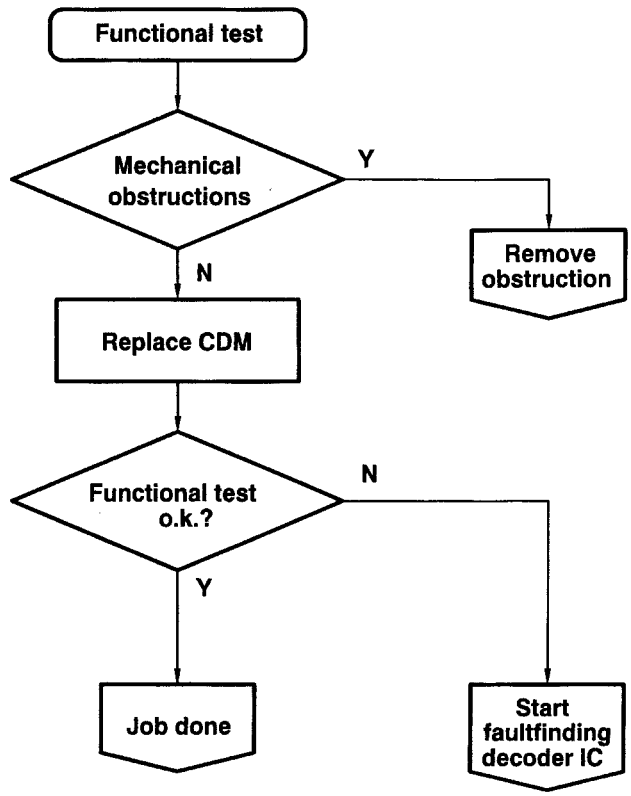
6)-Check driver 7061B.
Supply: C2060,C2064.
Components: C2062,C2063,C2066,R3060,R3062,R3064,R3065,R3066,R3067.

7)-Check connections of sledge drive.
Power off.
Measure impedance of 11 Ohm(+/-20%) between pin 5 and pin 6 of connector 1070.

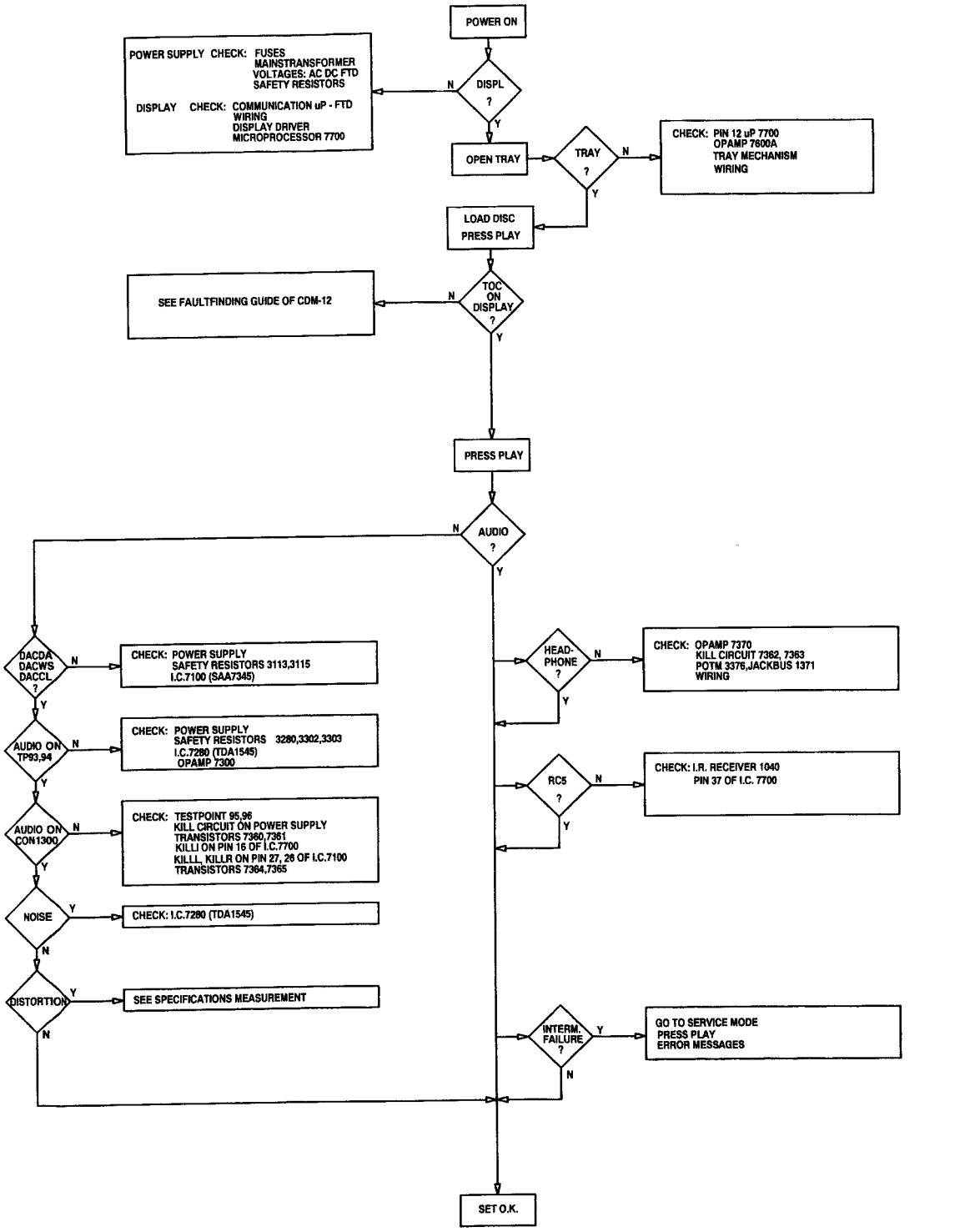
8)-Check sledge motor.
Remove CDM.
Measure impedance of 11 Ohm(+/-20%) between motor terminals.

18




Functional test
Mechanical obstructions
Y
Remove obstruction
N
Replace CDM
Functional test o.k.?
N
Y
Job done
Start faultfinding decoder IC

FAULTFINDING GUIDE

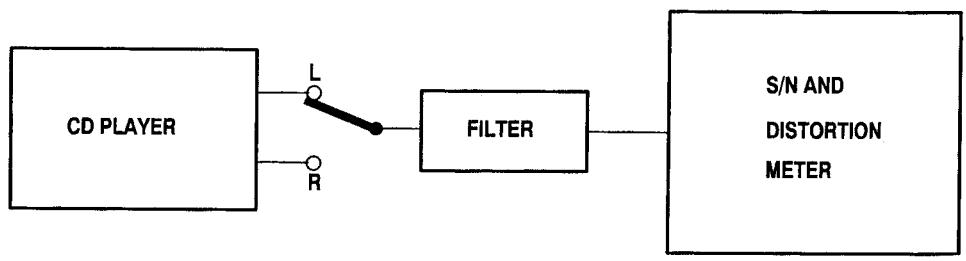


HAS1123
9345

SPECIFICATIONS MEASUREMENT

SIGNAL	AUDIO SIGNALS DISC 1	TESTPOINT	REMARKS
ANALOG OUT LEFT	TOTAL HARMONIC DISTORTION TRACKS 10 - 23	FILTER OUTPUT	SEE TECHNICAL DATA
ANALOG OUT RIGHT			SEE DRAWING
ANALOG OUT LEFT	SIGNAL-TO-NOISE RATIO TRACK 1 REFERENCE LEVEL TRACK 49	FILTER OUTPUT	SEE TECHNICAL DATA
ANALOG OUT RIGHT			SEE DRAWING

FILTER = 13TH ORDER FILTER 4822 395 30204



e.g. SOUND TECHNOLOGIE
ST1700B

ABBREVIATIONS

BCK	Bit clock input of CC-DAC TDA1545
CFLG	correction flag output
CL	interface clock input line
CL11	11.2896 MHz clock output
CL16	16.9344 MHz system clock output
CLA	4.2336 MHz microprocessor clock output
CLO	Clock output
CRIN	crystal/resonator input
CROUT	crystal/resonator output
D1-D4	Central diode input of TDA1301
D1-D5	Photodiode signals from CDM12 mechanism
DA	interface data I/O line
DACCL	Bit clock output of CD6 decoder SAA7345
DACDA	Data output of CD6 decoder SAA7345
DACWS	Word select output of CD6 decoder SAA7345
DATA	serial data output/Data input of CC-DAC TDA1545
DOBM	biphase mark output
FO	Focus actuator output
FOC+	+Connection of focus actuator
FOC-	Ground connection of focus actuator
HF	High-Frequency signal to decoder input
HFIN	comparator signal input
HFREF	comparator common-mode input
IOL	Left channel current output
IOR	Right channel current output
IREF	Reference current output
ISLICE	current feedback from data slicer
LDON	Laser drive on
MISC	general purpose DAC output
MOTO1	motor output 1
MOTO2	motor output 2
NRST	Reset input
OTD	Off track detector
PORE	power-on reset enable input(active low)
R1-R2	Satellite diode signal input
RA	Radial actuator output
RAB	interface R/W and acknowledge input
RAD+	+Connection of radial actuator
RAD-	Ground connection of radial actuator
SCLK	serial bit clock output
SICL	Serial interface clock
SIDA	Serial interface data
SILD	Serial interface load
SL OUT	+Connection of sledge motor
SL	Sledge output
TEST1	test input
TEST2	test input
TS1-TS2	Test inputs
V1-5	Versatile input pins
WCLK	Word clock output
WS	Word select input of CC-DAC TDA1545
XTLI	Oscillator input
XTLO	Oscillator output
XTLR	Oscillator reference

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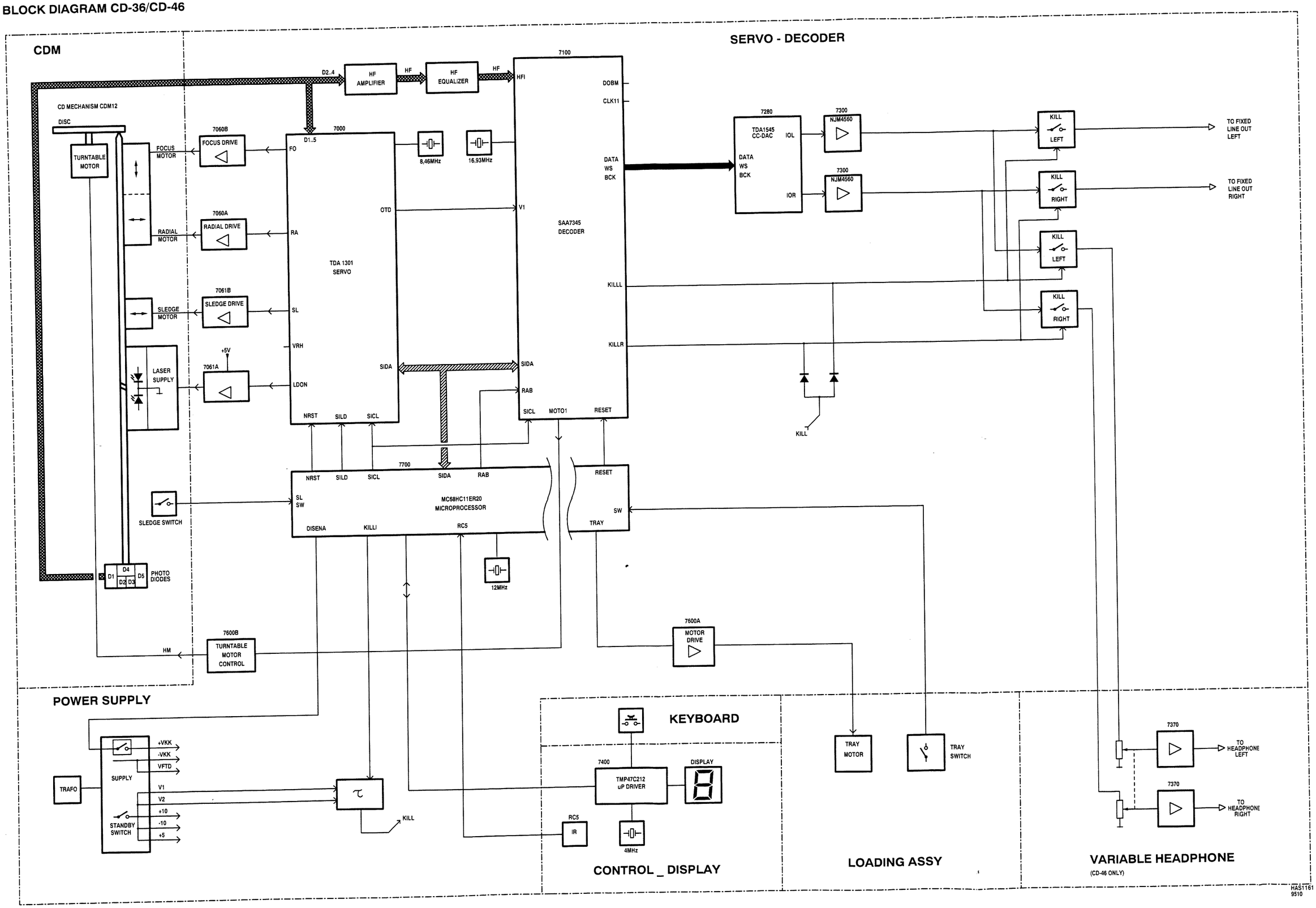
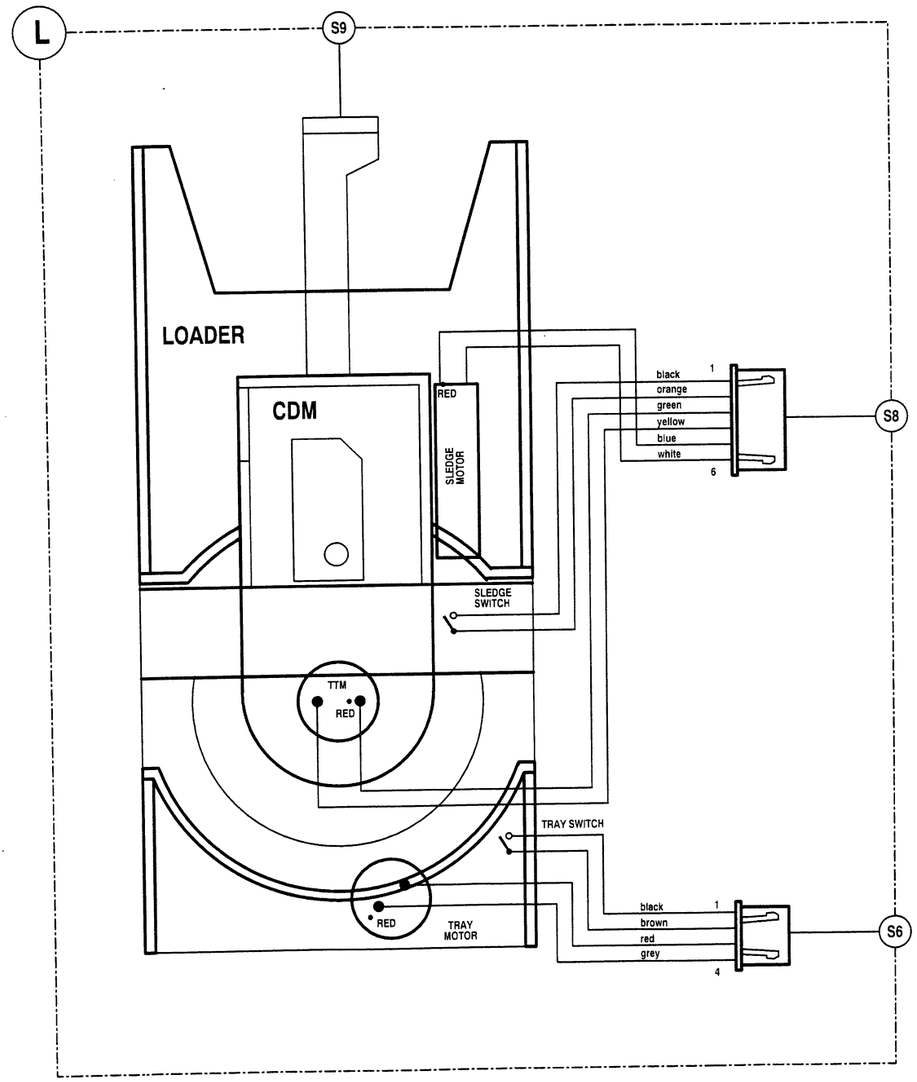
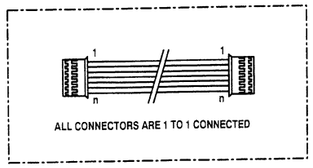
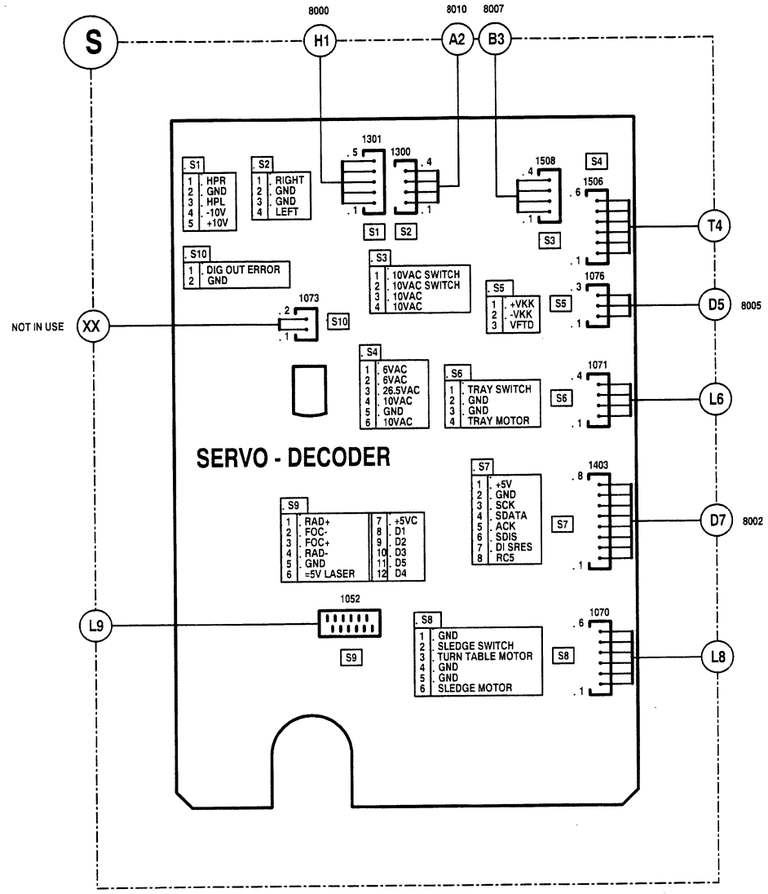
BLOCK DIAGRAM CD-36/CD-46

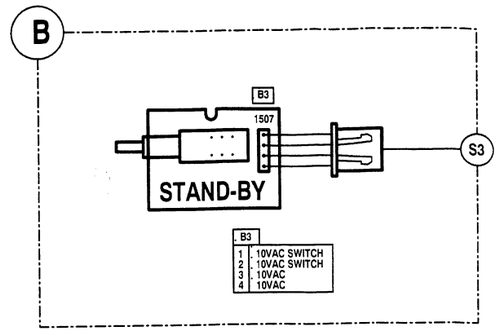


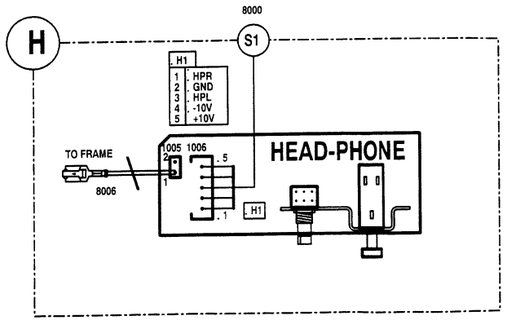
WIRING DIAGRAM

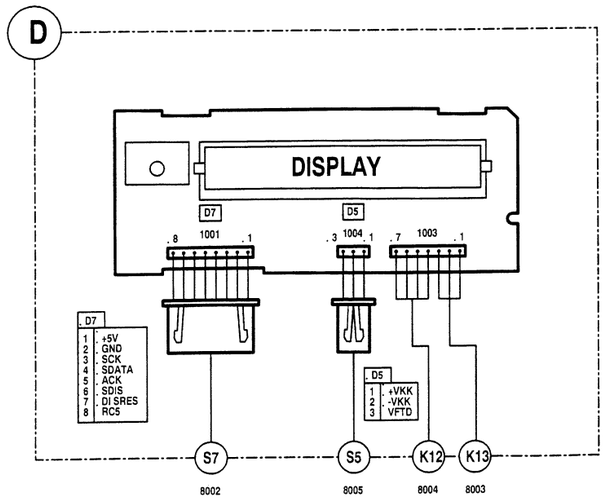


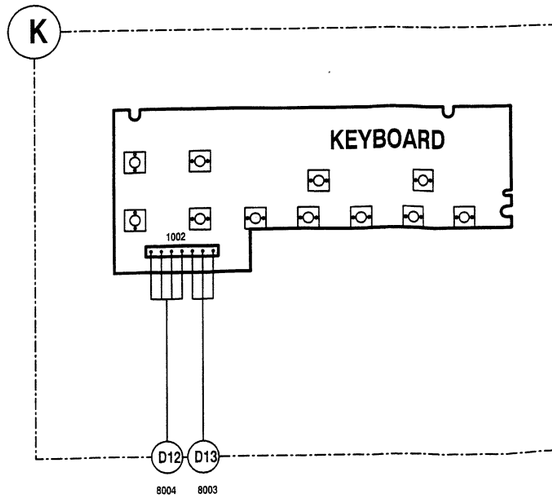












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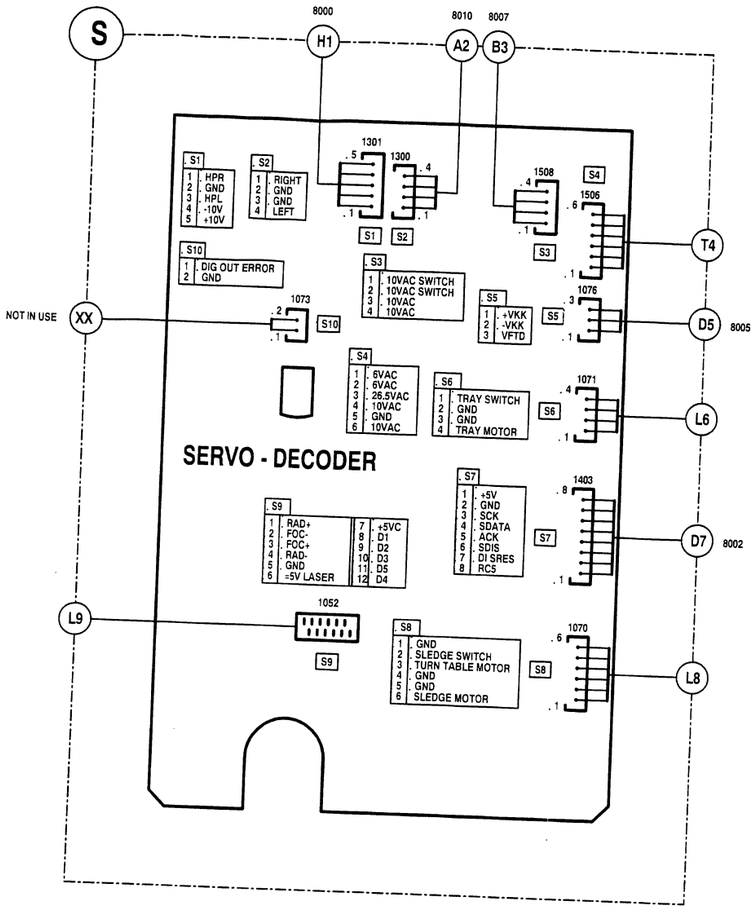
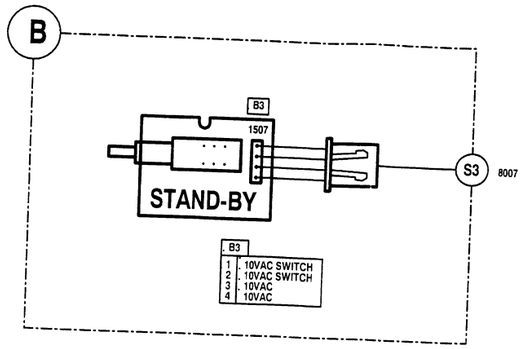
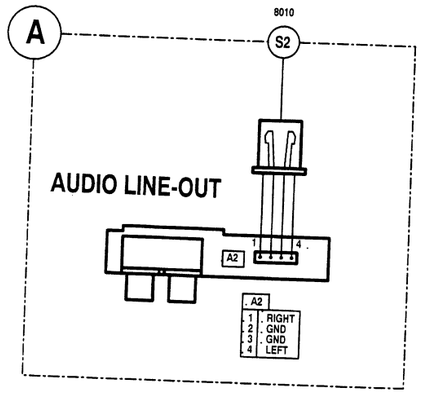
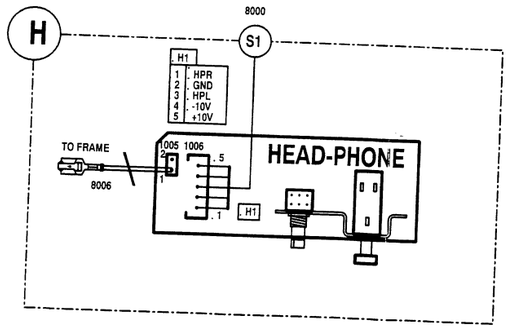
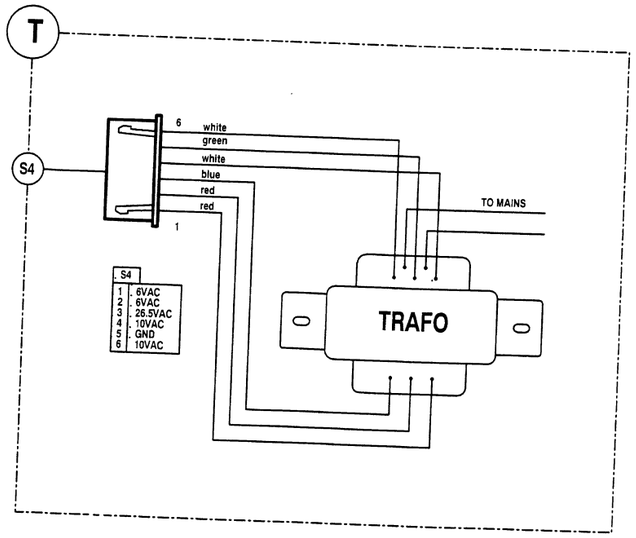
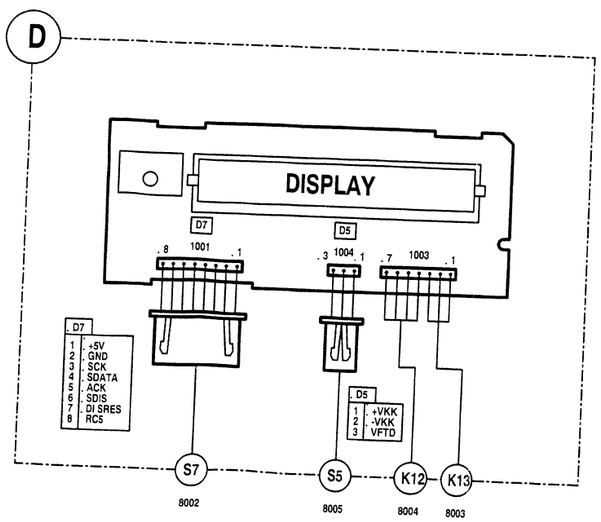


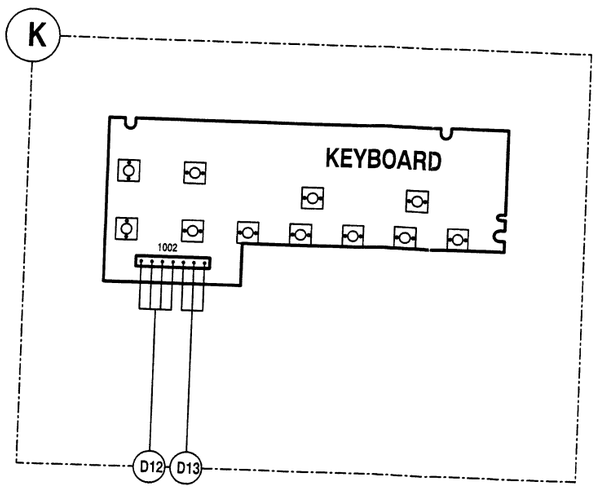






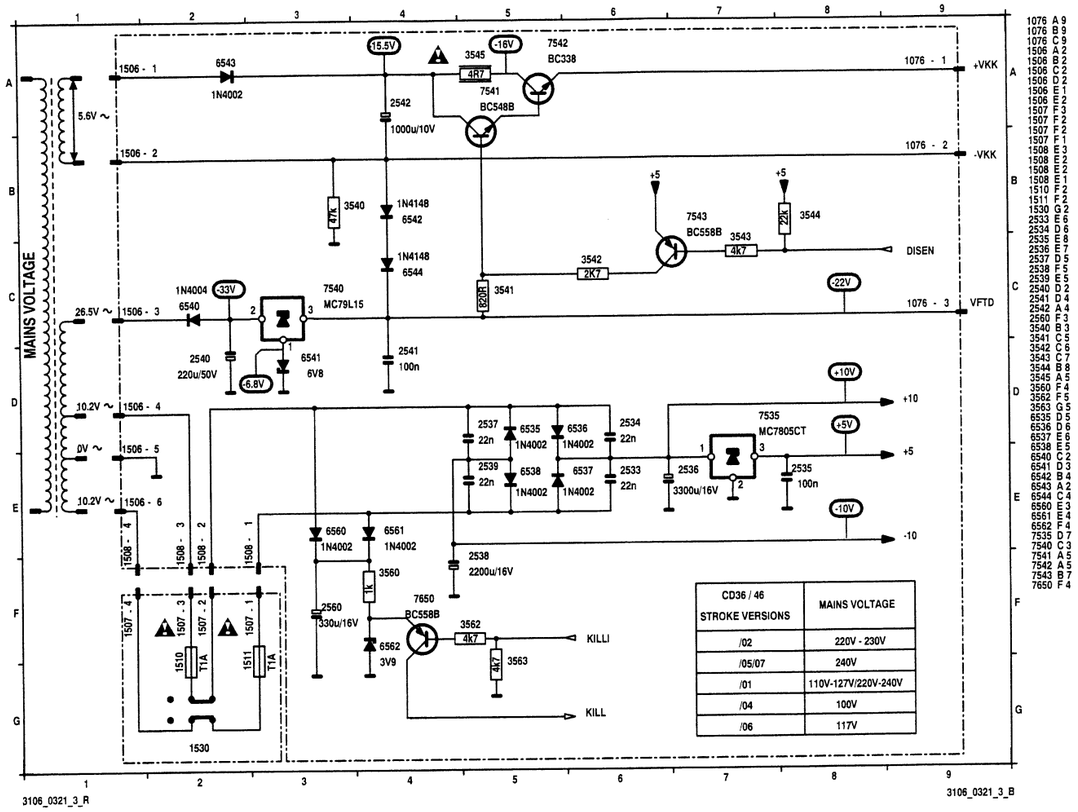




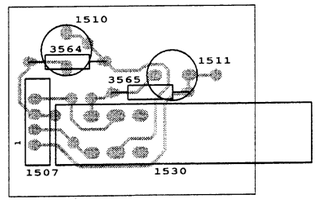


HAS1162
9509

POWER SUPPLY CIRCUIT DIAGRAM

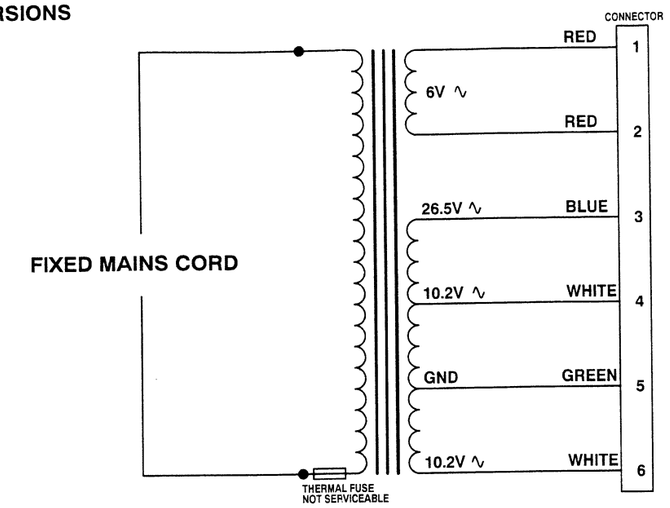


SWITCH PANEL



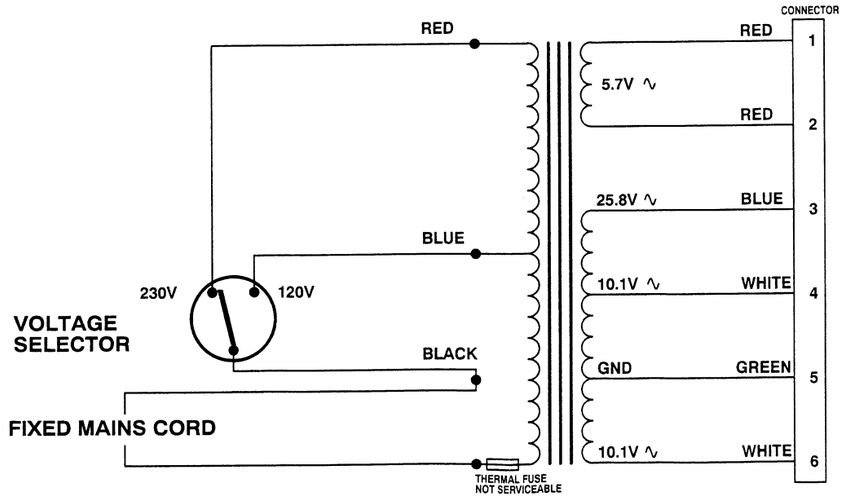
TRANSFORMER CONNECTIONS

/02/04/05/06/07 VERSIONS



VERSION	MAINS VOLTAGE	SERVICE CODE
/02	220V-230V	4822 146 31337
/05	240V	4822 146 31339
/04 (F)	100V	4822 146 31345
/06 (U)	117V	4822 146 31341
/07	240V	4822 146 21797

/01 VERSION



POSITION	MAINS VOLTAGE	SERVICE CODE
120V	110V-127V	4822 146 21796
230V	220V-240V	

TRANSFORMER AND VOLTAGE SELECTOR ARE ONE ASSEMBLY

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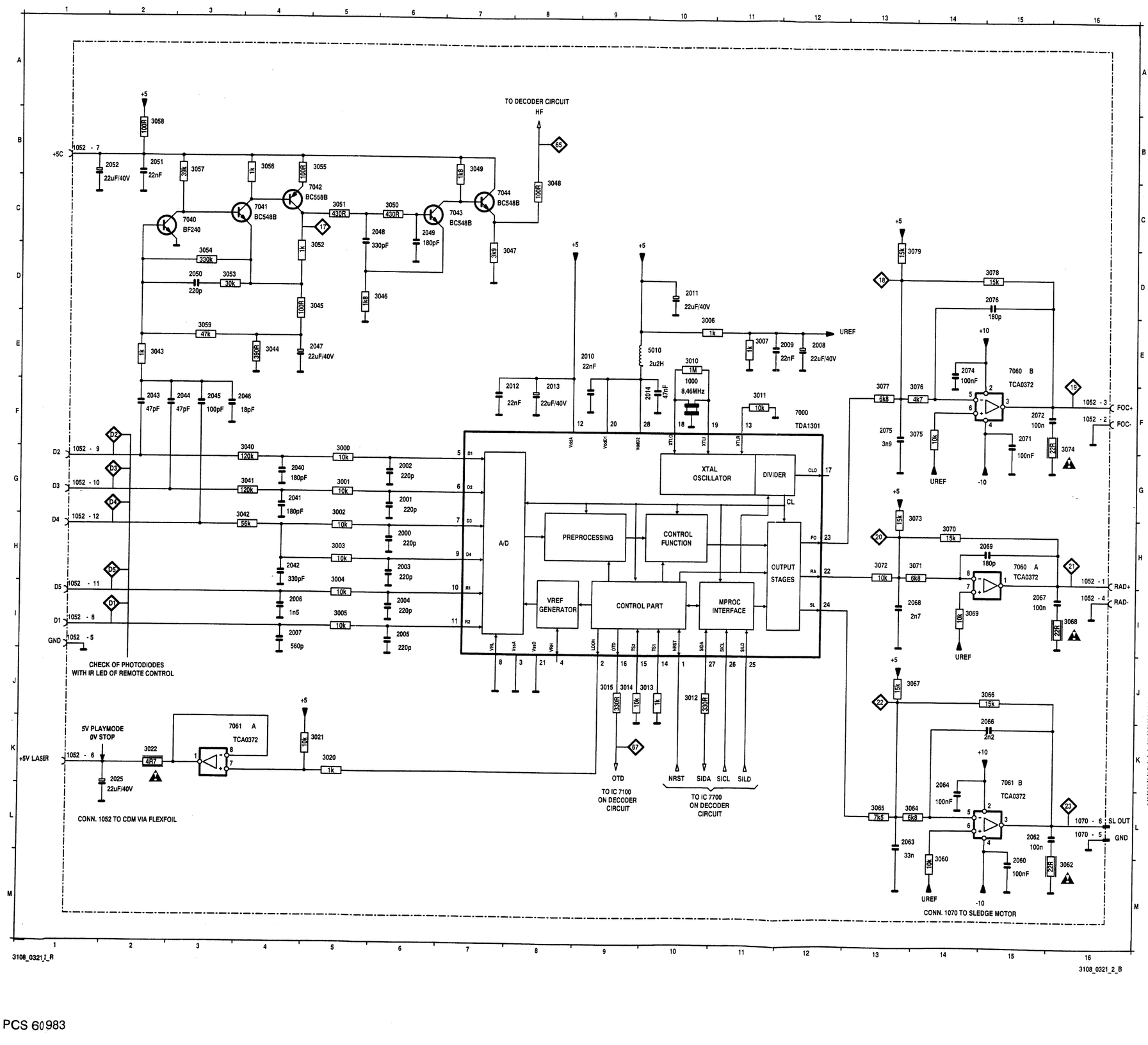
SERVO CIRCUIT DIAGRAM



17 / 65 — eyepattern: 2.5V, 0,5us/DIV

18 / 20 — STOP MODE: 0,5us/DIV, 80mV, ACTIVITY IN PLAY MODE

19 — ACTIVITY DURING PLAY

21 — ACTIVITY DURING PLAY

22 — STOP MODE: 0,5us/DIV, 20mV, ACTIVITY IN PLAY MODE

23 — SERVICE MODE 0
SL OUT: -3.5V
SL IN: +3.5V

67 — +5V STOP MODE
0V PLAY MODE
HIGH PULSES PAUSE,NEXT,PREVIOUS

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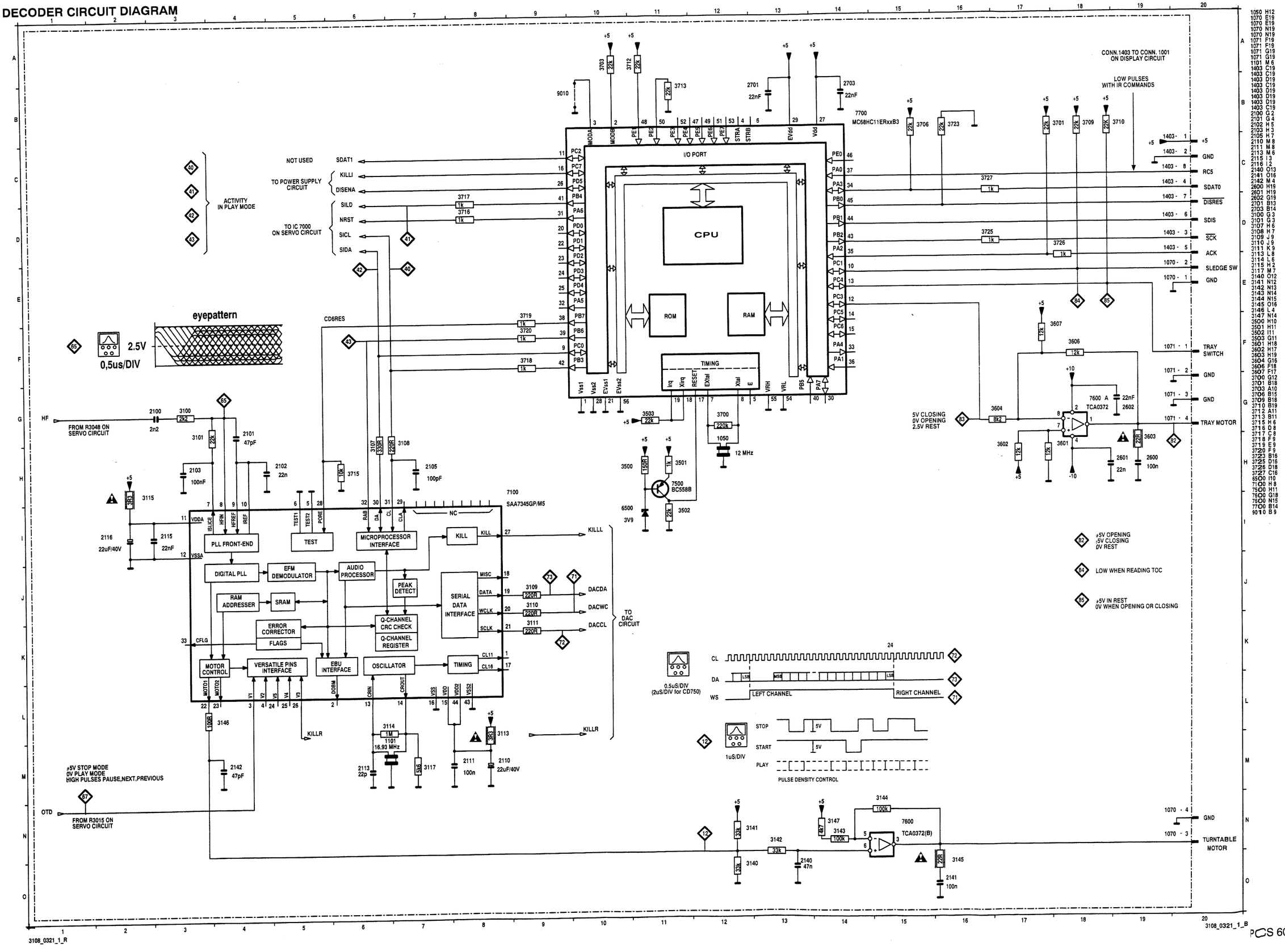
DECODER CIRCUIT DIAGRAM



DAC CIRCUIT DIAGRAM

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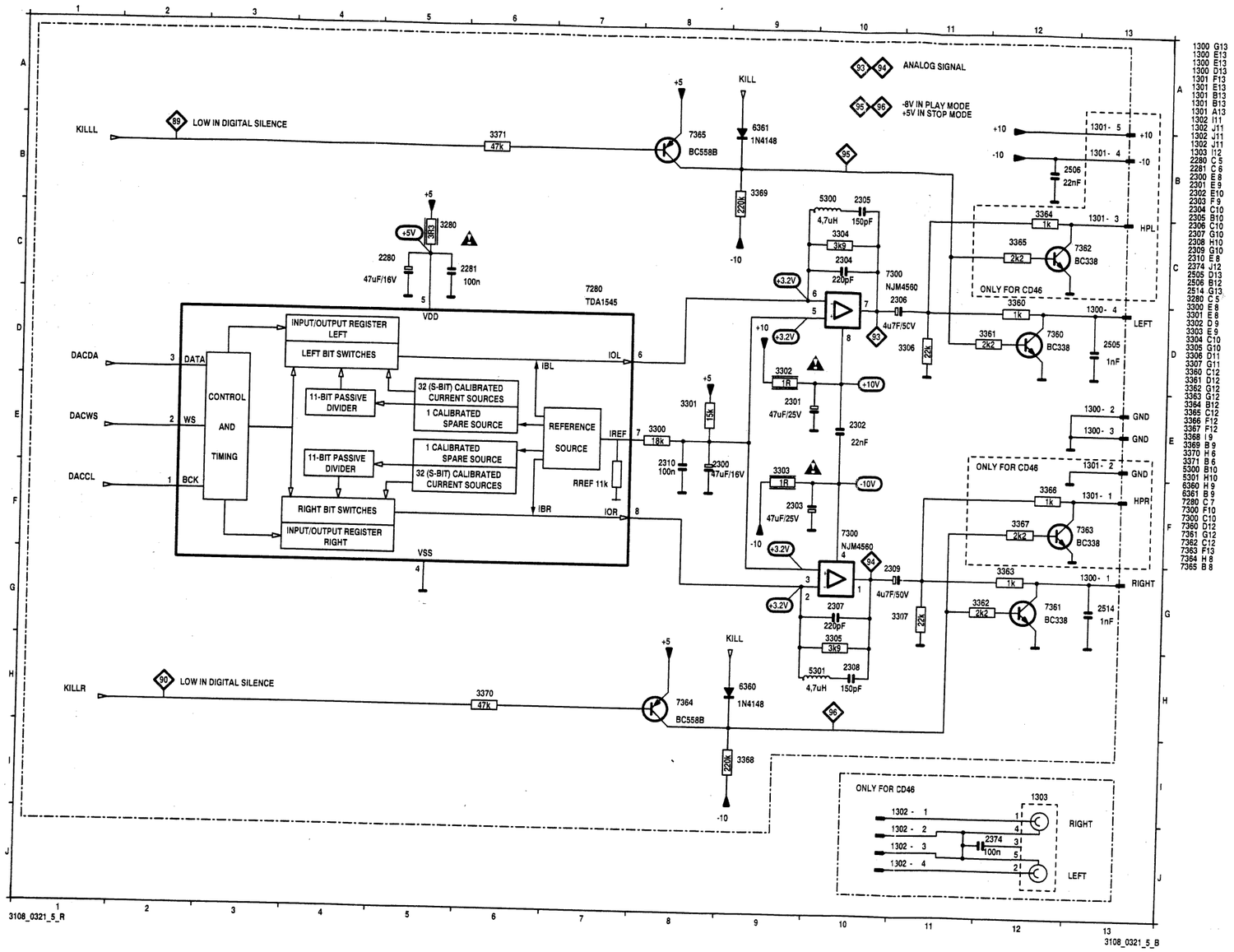

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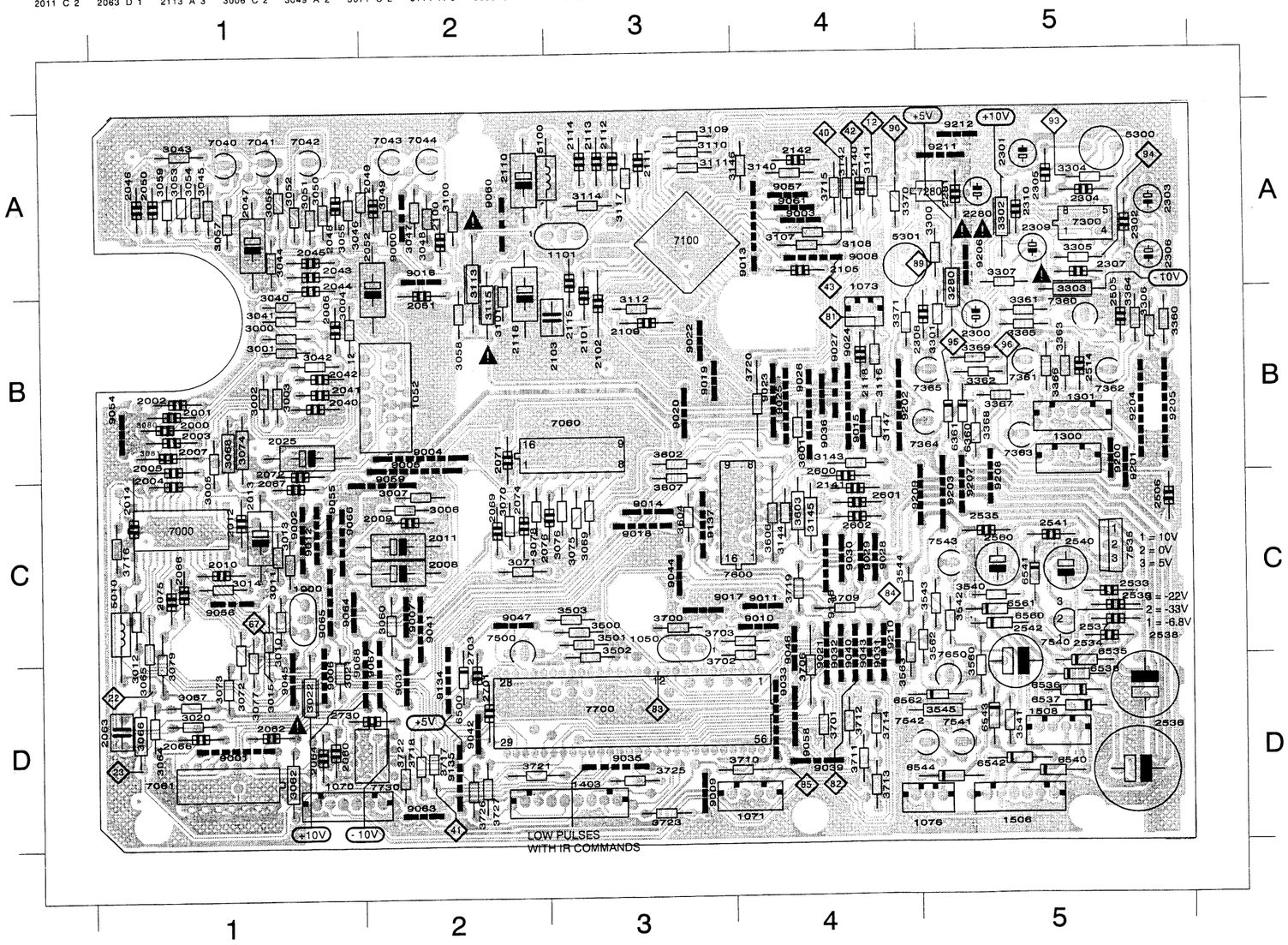
MAIN PANEL COMPONENT SIDE

1000 C 1	2012 C 1	2064 D 1	2114 A 3	3007 C 2	3050 A 1	3072 C 1	3115 B 2	3607 C 3	3723 D 3	9000 A 2	9020 B 3	9042 D 2	9134 D 2	2308 B 5	3302 A 5	3542 C 5	6560 C 5	9203 C 5
1050 C 3	2013 C 1	2066 D 1	2115 A 3	3010 C 1	3051 A 1	3073 D 1	3116 B 4	3700 C 3	3725 D 3	9001 D 1	9021 C 4	9043 C 4	9135 D 2	2309 A 5	3303 B 5	3543 C 5	6561 C 5	9204 B 5
1052 B 2	2014 C 1	2067 C 1	2116 B 2	3011 C 1	3052 A 1	3074 B 1	3117 A 3	3701 D 4	3726 D 2	9002 C 1	9022 B 3	9044 C 3	9136 C 4	2310 A 5	3304 A 5	3544 C 4	6562 D 5	9205 B 5
1070 D 1	2025 B 1	2068 C 1	2118 B 4	3012 C 1	3053 A 1	3075 C 3	3140 A 4	3702 C 4	3727 D 2	9003 A 4	9023 B 4	9045 D 1	9137 C 3	2505 B 5	3305 A 5	3545 D 5	7280 A 5	9206 A 5
1071 D 4	2040 B 1	2069 C 2	2140 A 4	3013 C 1	3054 A 1	3076 C 3	3141 A 4	3703 C 4	5010 C 1	9004 B 2	9024 B 4	9046 C 4	----	2506 C 5	3306 B 5	3560 D 5	7300 A 5	9207 C 5
1073 B 4	2041 B 1	2071 B 2	2141 C 4	3014 C 1	3055 A 1	3077 C 1	3142 A 4	3706 D 4	5100 A 3	9005 B 2	9025 B 4	9047 C 2	1076 D 5	2514 B 5	3307 A 5	3562 C 5	7360 B 5	9208 C 5
1101 A 3	2042 B 1	2072 B 1	2142 A 4	3015 C 1	3056 A 1	3078 C 2	3143 B 4	3709 C 4	6500 D 2	9006 D 1	9026 B 4	9054 B 1	1300 B 5	2533 C 5	3360 B 5	3563 C 4	7361 B 5	9209 C 4
1403 D 3	2043 A 1	2074 C 2	2600 C 4	3020 D 1	3057 A 1	3079 C 1	3144 C 4	3710 D 4	7000 C 1	9007 C 2	9027 B 4	9055 C 1	1301 B 5	2534 C 5	3361 B 5	5300 A 5	7362 B 5	9210 C 4
2000 B 1	2044 A 1	2075 C 1	2601 C 4	3021 D 1	3058 B 2	3080 B 1	3145 C 4	3711 D 4	7040 A 1	9008 A 4	9028 C 4	9056 C 1	1506 D 5	2535 C 5	3362 B 5	5301 A 4	7363 B 5	9211 A 5
2001 B 1	2045 A 1	2076 C 3	2602 C 4	3022 D 1	3059 A 1	3081 B 1	3146 A 4	3712 D 4	7041 A 1	9009 D 3	9029 C 4	9057 A 4	1508 D 5	2536 D 5	3363 B 5	6360 B 5	7364 B 5	9212 A 5
2002 B 1	2046 A 1	2100 A 2	2701 D 2	3040 B 1	3060 C 2	3100 A 2	3147 B 4	3713 D 4	7042 A 1	9010 C 4	9030 C 4	9058 D 4	2280 A 5	2537 C 5	3364 B 5	6361 B 5	7365 B 5	
2003 B 1	2047 A 1	2101 B 3	2703 D 2	3041 B 1	3062 D 1	3101 B 2	3500 C 3	3714 D 4	7043 A 2	9011 C 4	9031 C 4	9059 C 2	2281 A 5	2538 D 5	3365 B 5	6535 D 5	7535 C 5	
2004 C 1	2048 A 1	2102 B 3	2730 D 2	3042 B 1	3064 D 1	3107 A 4	3501 C 3	3715 A 4	7044 A 2	9012 C 1	9032 C 4	9060 A 2	2300 B 5	2539 C 5	3366 B 5	6536 D 5	7540 C 5	
2005 B 1	2049 A 2	2103 B 3	3000 B 1	3043 A 1	3065 C 1	3108 A 4	3502 C 3	3716 C 1	7060 B 3	9013 A 4	9033 D 4	9061 A 4	2301 A 5	2540 C 5	3367 B 5	6537 D 5	7541 D 5	
2006 B 1	2050 A 1	2105 A 4	3001 B 1	3044 A 1	3066 D 1	3109 A 3	3503 C 3	3717 D 2	7061 D 1	9014 C 3	9035 D 3	9063 D 2	2302 A 5	2541 C 5	3368 B 5	6538 D 5	7542 D 5	
2007 B 1	2051 B 2	2109 B 3	3002 B 1	3045 A 1	3067 D 1	3110 A 3	3601 B 4	3718 D 2	7100 A 3	9015 B 4	9036 B 4	9064 C 1	2303 A 5	2542 D 5	3369 B 5	6540 D 5	7543 C 5	
2008 C 2	2052 A 2	2110 A 2	3003 B 1	3046 A 1	3088 B 1	3111 A 3	3602 B 3	3719 C 4	7500 C 2	9016 A 2	9037 D 2	9065 C 1	2304 A 5	2560 C 5	3370 A 4	6541 C 5	7650 D 5	
2009 C 2	2060 D 1	2111 A 3	3004 B 1	3047 A 2	3069 C 3	3112 B 3	3603 C 4	3720 B 4	7600 C 4	9017 C 3	9039 D 4	9066 C 1	2305 A 5	3280 B 5	3371 B 4	6542 D 5	9200 B 5	
2010 C 1	2062 D 1	2112 A 3	3005 B 1	3048 A 2	3070 C 2	3113 A 2	3604 C 3	3721 D 2	7700 D 3	9018 C 3	9040 C 4	9067 D 2	2306 A 5	3300 A 5	3540 C 5	6543 D 5	9201 B 5	
2011 C 2	2063 D 1	2113 A 3	3006 C 2	3049 A 2	3071 C 2	3114 A 3	3606 C 4	3722 D 2	7730 D 2	9019 B 3	9041 C 2	9068 D 1	2307 A 5	3301 B 5	3541 D 5	6544 D 5	9202 B 4	



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MAIN PANEL SOLDER SIDE

9203 C 5	6560 C 5	3542 C 5	3302 A 5	2308 B 5	9134 D 2	9042 D 2	9020 B 3	9000 A 2	3723 D 3	3607 C 3	3115 B 2	3072 C 1	3050 A 1	3007 C 2	2114 A 3	2064 D 1	2012 C 1	1000 C 1
9204 B 5	6561 C 5	3543 C 5	3303 B 5	2309 A 5	9135 D 2	9043 C 4	9021 C 4	9001 D 1	3725 D 3	3700 C 3	3116 B 4	3073 D 1	3051 A 1	3010 C 1	2115 A 3	2066 D 1	2013 C 1	1050 C 3
9205 B 5	6562 D 5	3544 C 4	3304 A 5	2310 A 5	9136 C 4	9044 C 3	9022 B 3	9002 C 1	3726 D 2	3701 D 4	3117 A 3	3074 B 1	3052 A 1	3011 C 1	2116 B 2	2067 C 1	2014 C 1	1052 B 2
9206 A 5	7280 A 5	3545 D 5	3305 A 5	2505 B 5	9137 C 3	9045 D 1	9023 B 4	9003 A 4	3727 D 2	3702 C 4	3140 A 4	3075 C 3	3053 A 1	3012 C 1	2118 B 4	2068 C 1	2025 B 1	1070 D 1
9207 C 5	7300 A 5	3560 D 5	3306 B 5	2506 C 5	----	9046 C 4	9024 B 4	9004 B 2	5010 C 1	3703 C 4	3141 A 4	3076 C 3	3054 A 1	3013 C 1	2140 A 4	2069 C 2	2040 B 1	1071 D 4
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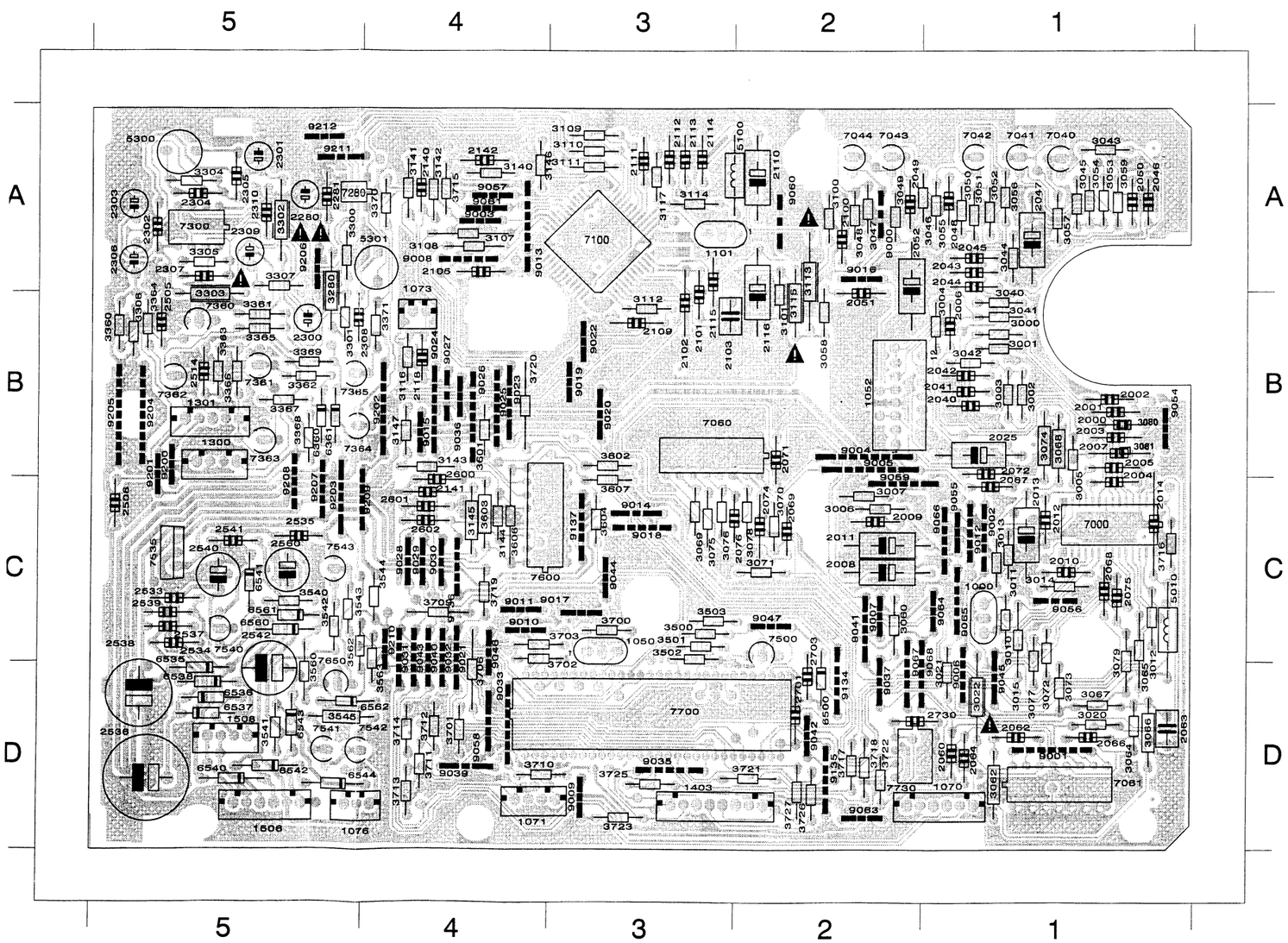
	9201 B 5	6543 D 5	3540 C 5	3300 A 5	2306 A 5	9067 D 2	9040 C 4	9018 C 3	7700 D 3	3721 D 2	3604 C 3	3113 A 2	3070 C 2	3048 A 2	3005 B 1	2112 A 3	2062 D 1	2010 C 1
	9202 B 4	6544 D 5	3541 D 5	3301 B 5	2307 A 5	9068 D 1	9041 C 2	9019 B 3	7730 D 2	3722 D 2	3606 C 4	3114 A 3	3071 C 2	3049 A 2	3006 C 2	2113 A 3	2063 D 1	2011 C 2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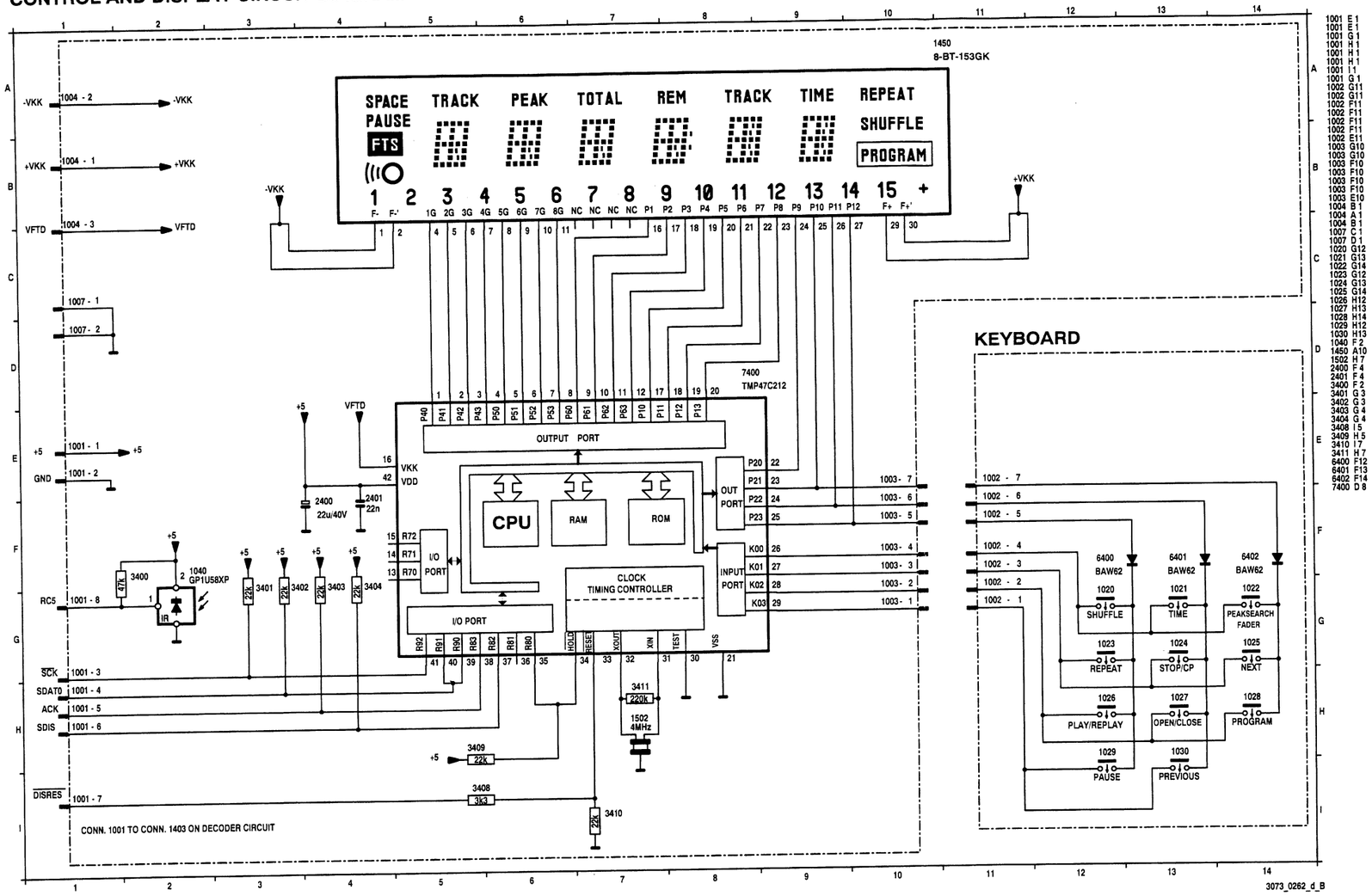
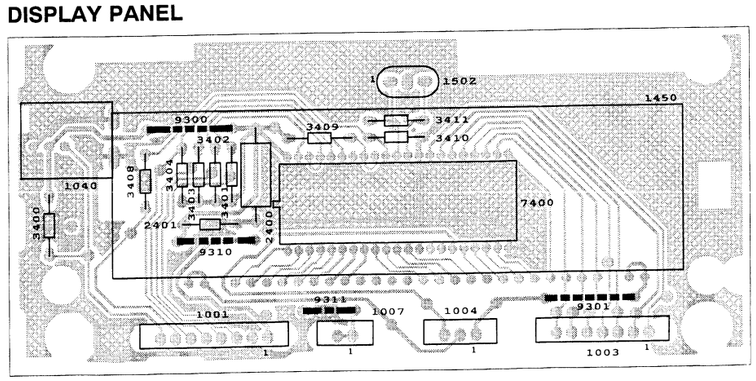
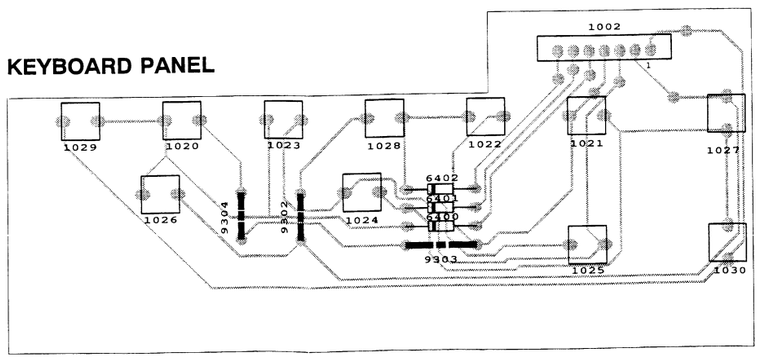
CONTROL AND DISPLAY CIRCUIT DIAGRAM



DISPLAY PANEL



KEYBOARD PANEL



HEADPHONE CIRCUIT DIAGRAM(CD46 only)

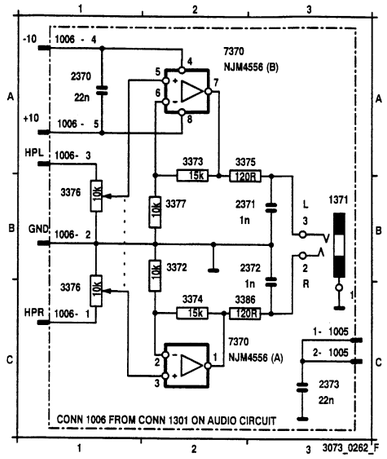
1005 C 3
1005 C 3
1006 C 1
1006 B 1
1006 A 1

1006 A 1
1006 A 1
1371 B 3
2370 A 1
2371 B 2

2372 B 3
2373 C 3
3372 B 2
3373 A 2
3374 C 2

3375 A 3
3376 C 1
3376 B 1
3377 B 2
3386 C 3

7370 C 2
7370 A 2



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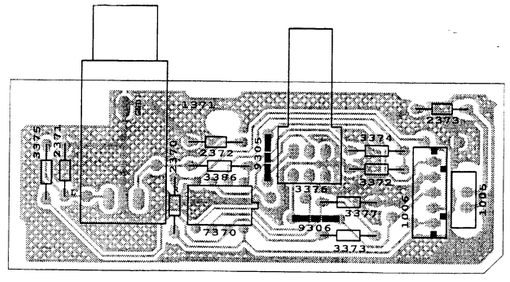

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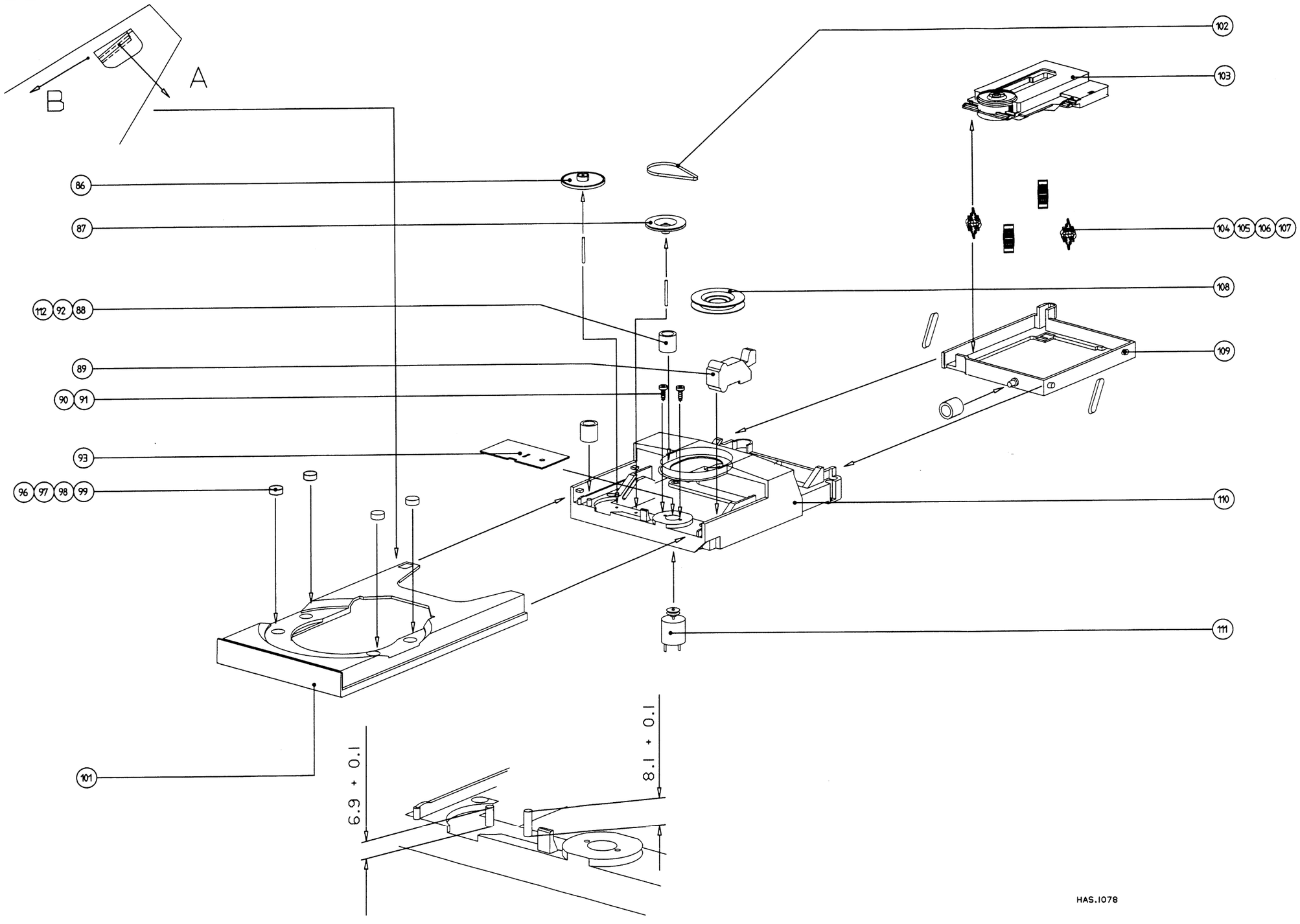
LOADER

DETAIL I



HAS.1078

PARTSLIST LOADER

86	4822 528 81464	DRIVE PINION
87	4822 528 81465	PULLEY
88,92,112	4822 325 60379	DAMPING GROMMET
89	4822 276 13222	SWITCH
93	4822 444 60816	COVER PLATE
96,97,98,99	4822 325 80511	ORNAMENTAL TULE
101	4822 444 50679	SLIDE
102	4822 358 31168	BELT
103	4822 691 30278	CDM12.1 MECHANISM
104,105,106,107	4822 325 50215	SUSPENSION
108	4822 402 61412	CLAMPER ASSY
109	4822 464 50895	SUBCHASSIS
110	4822 464 50678	CHASSIS
111	4822 361 21492	MOTOR

Screws

90,91	selftapping screw 2,2 x 4

MECHANICAL PARTS LIST

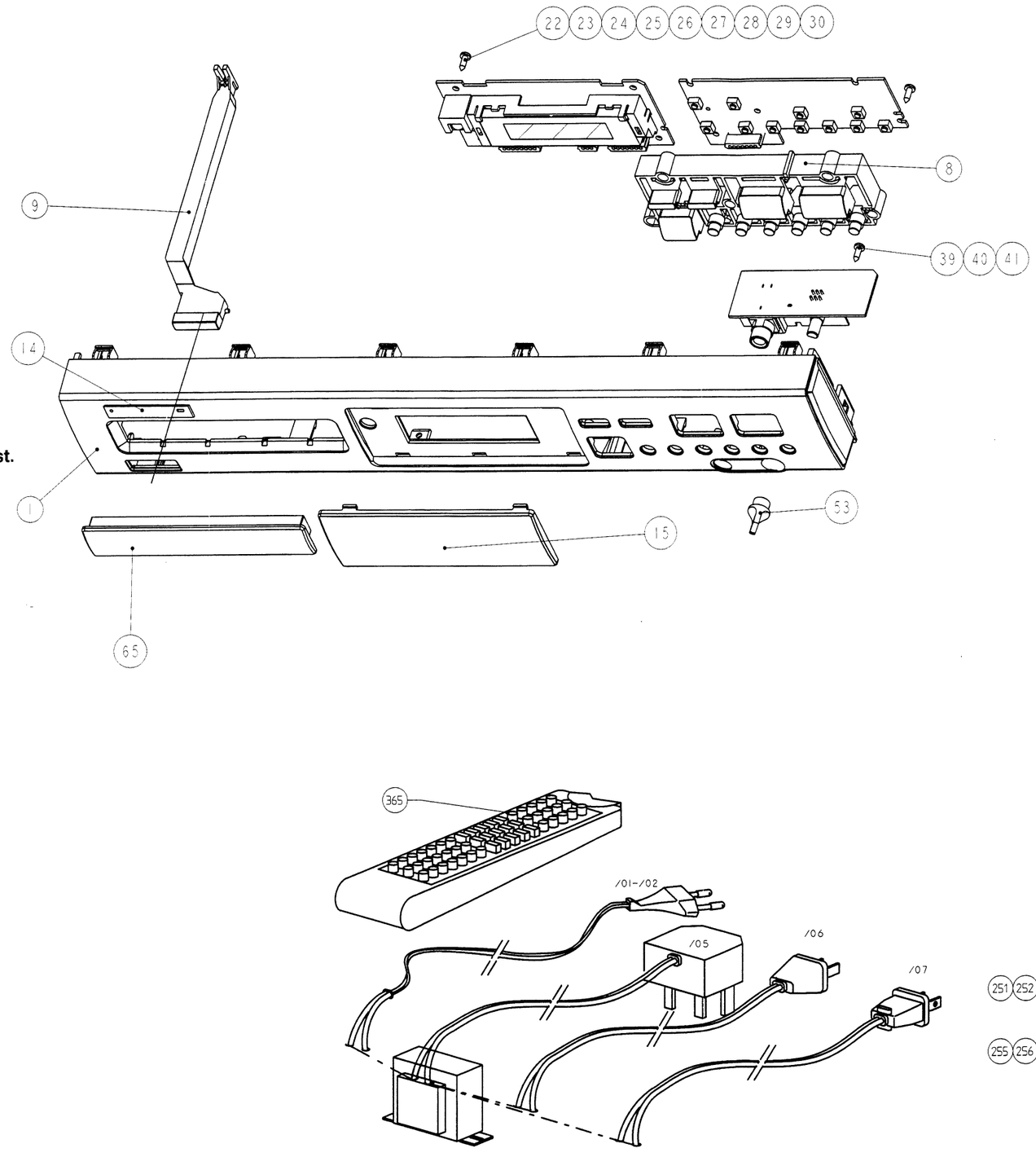
1		4822 444 40817	FRONT CD36
1		4822 444 40816	FRONT CD46
8		4822 410 63683	KNOBUNIT
9		4822 402 61557	POWER ROD
14		4822 454 12948	WORDMARK
15		4822 450 62406	WINDOW
53		4822 410 61467	VOLUME KNOB
65		4822 444 50738	TRAY FRONT
151		4822 444 60976	COVER CD36
151		4822 444 61045	COVER CD46
251,252,253,254		4822 462 42081	FOOT CD36
251,252,253,254		4822 462 42163	FOOT GOLD CD46
255,256,257,258		4822 462 40683	TABLE PROTECTOR
283,284	⚠	4822 532 60948	BUSHING
306	⚠	4822 265 10092	ADAPTER (/01B)
308		4822 321 62381	CINCH CABLE CD36
308		4822 321 22832	CINCH CABLE CD46
365		4822 218 10538	REM.CONTROL RD6843

Not mentioned parts are only available during production period on special request.

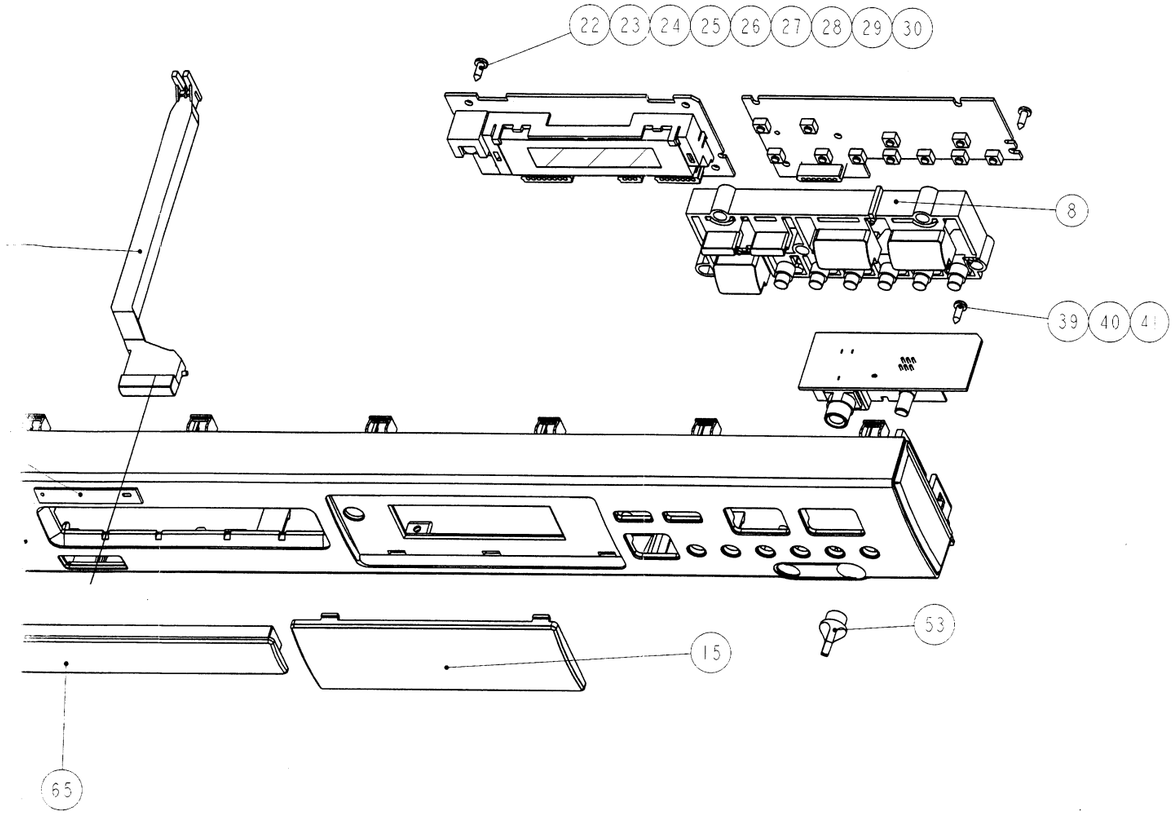
Screws

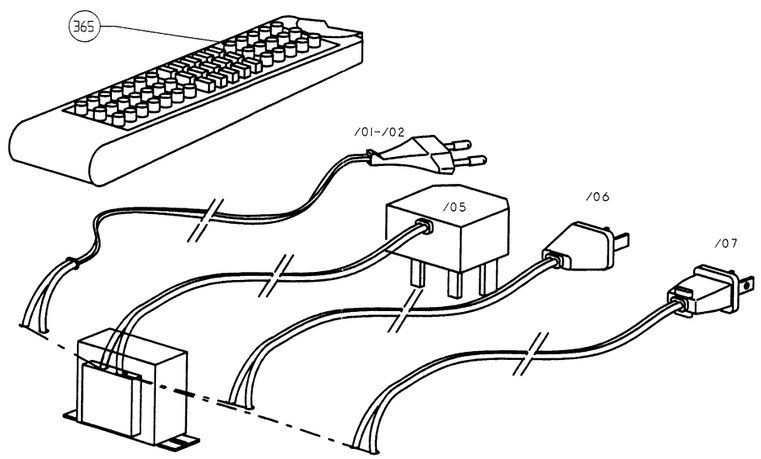
Selftapping screw for plastic 3x8:	200, 201, 202, 222
Selftapping screw for plastic 3x10:	39, 40, 41
Selftapping screw for plastic 3x12:	22, 23, 24, 25, 26, 27, 28, 29, 30
Selftapping screw for metal M3x6:	75, 76 171, 172, 173, 174 175, 176, 177 205, 210, 220, 221 291, 292
Selftapping screw for metal M3x10:	203, 211

EXPLODED VIEW

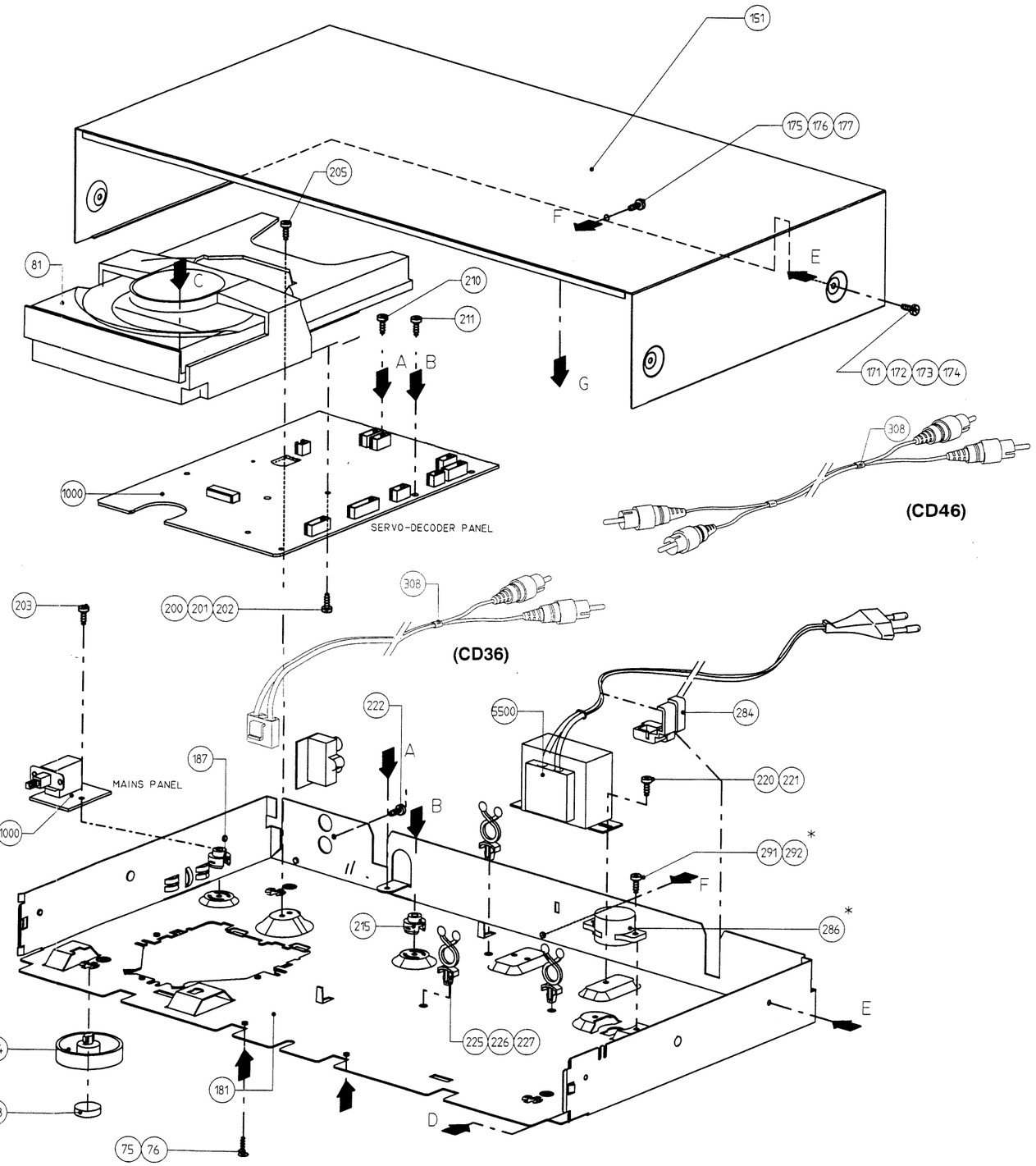


EXPLODED VIEW





* ONLY /01-VERSION



ELECTRICAL PARTS LIST

MISCELLANEOUS

	4822 256 92151	DISPLAY HOLDER
1000	4822 242 73557	RESONATOR 8.46MHz
1020	4822 276 13114	TACT SWITCH
1021	4822 276 13114	TACT SWITCH
1022	4822 276 13114	TACT SWITCH
1023	4822 276 13114	TACT SWITCH
1024	4822 276 13114	TACT SWITCH
1025	4822 276 13114	TACT SWITCH
1026	4822 276 13114	TACT SWITCH
1027	4822 276 13114	TACT SWITCH
1028	4822 276 13114	TACT SWITCH
1029	4822 276 13114	TACT SWITCH
1030	4822 276 13114	TACT SWITCH
1040	4822 214 52009	IR RECEIVER GP1U58XP
1050	5322 242 73686	RESONATOR 12MHz
1101	4822 242 81865	RESONATOR 16.93MHz
1303	4822 267 31731	ANALOG OUT SOCKET
1371	4822 267 31453	HEADPHONE SOCKET
1450	4822 130 91329	DISPLAY 8-BT-153GK
1502	4822 242 72527	RESONATOR 4MHz
1510 ⚠	4822 071 51002	FUSE RADIAL T 1A
1511 ⚠	4822 071 51002	FUSE RADIAL T 1A
1530 ⚠	4822 276 13489	MAINS SWITCH

CAPACITORS

2000	4822 122 10466	220pF 10% 50V
2001	4822 122 10466	220pF 10% 50V
2002	4822 122 10466	220pF 10% 50V
2003	4822 122 10466	220pF 10% 50V
2004	4822 122 10466	220pF 10% 50V
2005	4822 122 10466	220pF 10% 50V
2006	4822 126 12878	1,5nF 10% 16V
2007	4822 122 10459	560pF 10% 50V
2008	5322 124 21643	22µF 20% 40V
2009	4822 126 11585	22nF +80-20% 25V
2010	4822 126 11585	22nF +80-20% 25V
2011	5322 124 21643	22µF 20% 40V
2012	4822 126 11585	22nF +80-20% 25V
2013	5322 124 21643	22µF 20% 40V
2014	4822 126 12785	47nF TUB 50V
2025	5322 124 21643	22µF 20% 40V
2040	4822 126 10053	180pF 10%Y5P
2041	4822 126 10053	180pF 10%Y5P
2042	4822 126 12787	330pF 10% 50V
2043	4822 122 33848	47pF 5%SL 50V
2044	4822 122 33848	47pF 5%SL 50V
2045	4822 122 33195	100pF 10% 50V
2046	4822 126 12573	18pF 5% 50V
2047	5322 124 21643	22µF 20% 40V
2048	4822 126 12787	330pF 10% 50V
2049	4822 126 10053	180pF 10%Y5P
2050	4822 122 10466	220pF 10% 50V
2051	4822 126 11585	22nF +80-20% 25V
2052	5322 124 21643	22µF 20% 40V
2060	4822 126 12882	100nF +80-20% 50V
2062	4822 126 12882	100nF +80-20% 50V
2063	5322 121 42489	33nF 5% 250V
2064	4822 126 12882	100nF +80-20% 50V
2066	4822 126 12339	2,2nF 10% Y5Ω
2067	4822 126 12882	100nF +80-20% 50V
2068	4822 126 12148	2,7nF 10%
2069	4822 126 10053	180pF 10%Y5P
2071	4822 126 12882	100nF +80-20% 50V
2072	4822 126 12882	100nF +80-20% 50V
2074	4822 126 12882	100nF +80-20% 50V
2075	4822 126 13151	3,9nF 10% Y5Ω 16V
2076	4822 126 10053	180pF 10%Y5P
2100	4822 126 12339	2,2nF 10% Y5Ω
2101	4822 122 33848	47pF 5%SL 50V
2102	4822 126 11585	22nF +80-20% 25V
2103	5322 121 42386	100nF 5% 63V
2105	4822 122 33195	100pF 10% 50V
2110	5322 124 21643	22µF 20% 40V
2111	4822 126 12882	100nF +80-20% 50V
2113	4822 122 33191	22pF 5% 50V
2115	4822 126 11585	22nF +80-20% 25V
2116	5322 124 21643	22µF 20% 40V
2140	4822 126 12785	47nF TUB 50V
2141	4822 126 12882	100nF +80-20% 50V
2142	4822 122 33848	47pF 5%SL 50V
2280	4822 124 40433	47µF 20% 25V
2281	4822 126 12882	100nF +80-20% 50V
2300	4822 124 40433	47µF 20% 25V
2301	4822 124 40433	47µF 20% 25V
2302	4822 126 11585	22nF +80-20% 25V
2303	4822 124 40433	47µF 20% 25V
2304	4822 122 10466	220pF 10% 50V
2305	4822 122 33849	150pF 10%Y5P 50V
2306	4822 124 40246	4,7µF 20% 63V
2307	4822 122 10466	220pF 10% 50V
2308	4822 122 33849	150pF 10%Y5P 50V
2309	4822 124 40246	4,7µF 20% 63V
2310	4822 126 12882	100nF +80-20% 50V
2370	4822 126 11585	22nF +80-20% 25V
2371	4822 122 33197	1nF 10% 50V
2372	4822 122 33197	1nF 10% 50V
2373	4822 126 11585	22nF +80-20% 25V
2374	4822 126 12882	100nF +80-20% 50V
2400	5322 124 21643	22µF 20% 40V
2401	4822 126 11585	22nF +80-20% 25V
2505	4822 122 33197	1nF 10% 50V
2506	4822 126 12882	100nF +80-20% 50V

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2514	4822 122 33197	1nF 10% 50V
2533	4822 126 11585	22nF +80-20% 25V
2534	4822 126 11585	22nF +80-20% 25V
2535	4822 126 12882	100nF +80-20% 50V
2536	4822 124 80294	3300µF 20% 16V
2537	4822 126 11585	22nF +80-20% 25V
2538	4822 124 80148	2200µF 20% 16V
2539	4822 126 11585	22nF +80-20% 25V
2540	5322 124 22094	220µF 20% 50V
2541	4822 126 12882	100nF +80-20% 50V
2542	4822 124 40184	1000µF 20% 10V
2560	4822 124 40849	330µF 20% 16V
2600	4822 126 12882	100nF +80-20% 50V
2601	4822 126 11585	22nF +80-20% 25V
2602	4822 126 11585	22nF +80-20% 25V
2701	4822 126 11585	22nF +80-20% 25V
2703	4822 126 11585	22nF +80-20% 25V

RESISTORS

3000	4822 116 83864	10k 5% 0,5W
3001	4822 116 83864	10k 5% 0,5W
3002	4822 116 83864	10k 5% 0,5W
3003	4822 116 83864	10k 5% 0,5W
3004	4822 116 83864	10k 5% 0,5W
3005	4822 116 83864	10k 5% 0,5W
3006	4822 050 11002	1k 1% 0,4W
3007	4822 050 11002	1k 1% 0,4W
3010	4822 116 52235	1M 5% 0,5W
3011	4822 116 83864	10k 5% 0,5W
3012	4822 116 52219	330Ω 5% 0,5W
3013	4822 050 11002	1k 1% 0,4W
3014	4822 116 83864	10k 5% 0,5W
3015	4822 116 52219	330Ω 5% 0,5W
3020	4822 050 11002	1k 1% 0,4W
3021	4822 116 83864	10k 5% 0,5W
3022 ⚠	4822 052 10478	4Ω7 5% 0,33W
3040	4822 116 52239	120k 5% 0,5W
3041	4822 116 52239	120k 5% 0,5W
3042	4822 116 52291	56k 5% 0,5W
3043	4822 050 11002	1k 1% 0,4W
3044	4822 116 52222	390Ω 5% 0,5W
3045	4822 116 52175	100Ω 5% 0,5W
3046	4822 116 52249	1k8 5% 0,5W
3047	4822 116 52276	3k9 5% 0,5W
3048	4822 116 52175	100Ω 5% 0,5W
3049	4822 116 52249	1k8 5% 0,5W
3050	4822 116 52223	430Ω 5% 0,5W
3051	4822 116 52223	430Ω 5% 0,5W
3052	4822 050 11002	1k 1% 0,4W
3053	4822 116 52267	30k 5% 0,5W
3054	4822 116 52272	330k 5% 0,5W
3055	4822 116 52175	100Ω 5% 0,5W
3056	4822 050 11002	1k 1% 0,4W
3057	4822 116 52277	39k 5% 0,5W
3058	4822 116 52175	100Ω 5% 0,5W
3059	4822 116 52284	47k 5% 0,5W
3060	4822 116 83864	10k 5% 0,5W
3062 ⚠	4822 052 10229	22Ω 5% 0,33W
3064	4822 116 52296	6k8 5% 0,5W
3065	4822 050 27502	7k5 1% 0,6W
3066	4822 050 21503	15k 1% 0,6W
3067	4822 116 52244	15k 5% 0,5W
3068 ⚠	4822 052 10229	22Ω 5% 0,33W
3069	4822 116 83864	10k 5% 0,5W
3070	4822 116 52244	15k 5% 0,5W
3071	4822 116 52296	6k8 5% 0,5W
3072	4822 116 83864	10k 5% 0,5W
3073	4822 116 52244	15k 5% 0,5W
3074 ⚠	4822 052 10229	22Ω 5% 0,33W
3075	4822 116 83864	10k 5% 0,5W
3076	4822 116 52283	4k7 5% 0,5W
3077	4822 116 52296	6k8 5% 0,5W
3078	4822 116 52244	15k 5% 0,5W
3079	4822 116 52244	15k 5% 0,5W
3100	4822 116 52256	2k2 5% 0,5W
3101	4822 116 52257	22k 5% 0,5W
3107	4822 116 52219	330Ω 5% 0,5W
3108	4822 116 52215	220Ω 5% 0,5W
3109	4822 116 52215	220Ω 5% 0,5W
3110	4822 116 52215	220Ω 5% 0,5W
3111	4822 116 52215	220Ω 5% 0,5W
3113 ⚠	4822 052 10338	3Ω3 5% 0,33W
3114	4822 116 52235	1M 5% 0,5W
3115 ⚠	4822 052 10338	3Ω3 5% 0,33W
3117	4822 116 52289	5k6 5% 0,5W
3140	4822 116 52271	33k 5% 0,5W
3141	4822 116 52271	33k 5% 0,5W
3142	4822 116 52271	33k 5% 0,5W
3143	4822 116 52234	100k 5% 0,5W
3144	4822 116 52234	100k 5% 0,5W
3145 ⚠	4822 052 10229	22Ω 5% 0,33W
3146	4822 116 52175	100Ω 5% 0,5W
3147	4822 116 52283	4k7 5% 0,5W
3280 ⚠	4822 052 10338	3Ω3 5% 0,33W
3300	4822 116 52251	18k 5% 0,5W
3301	4822 116 52244	15k 5% 0,5W
3302 ⚠	4822 052 10108	1Ω 5% 0,33W
3303 ⚠	4822 052 10108	1Ω 5% 0,33W
3304	4822 116 52276	3k9 5% 0,5W
3305	4822 116 52276	3k9 5% 0,5W
3306	4822 116 52257	22k 5% 0,5W
3307	4822 116 52257	22k 5% 0,5W
3360	4822 050 11002	1k 1% 0,4W
3361	4822 116 52256	2k2 5% 0,5W

3362		4822 116 52256	2k2 5% 0,5W
3363		4822 050 11002	1k 1% 0,4W
3364		4822 050 11002	1k 1% 0,4W
3365		4822 116 52256	2k2 5% 0,5W
3366		4822 050 11002	1k 1% 0,4W
3367		4822 116 52256	2k2 5% 0,5W
3368		4822 116 83874	220k 5% 0,5W
3369		4822 116 83874	220k 5% 0,5W
3370		4822 116 52284	47k 5% 0,5W
3371		4822 116 52284	47k 5% 0,5W
3372		4822 116 83864	10k 5% 0,5W
3373		4822 116 52244	15k 5% 0,5W
3374		4822 116 52244	15k 5% 0,5W
3375		4822 116 52206	120Ω 5% 0,5W
3376		4822 101 21199	10kX2 20% 0,025W
3377		4822 116 83864	10k 5% 0,5W
3386		4822 116 52206	120Ω 5% 0,5W
3400		4822 116 52284	47k 5% 0,5W
3401		4822 116 52257	22k 5% 0,5W
3402		4822 116 52257	22k 5% 0,5W
3403		4822 116 52257	22k 5% 0,5W
3404		4822 116 52257	22k 5% 0,5W
3408		4822 116 52269	3k3 5% 0,5W
3409		4822 116 52257	22k 5% 0,5W
3410		4822 116 52257	22k 5% 0,5W
3411		4822 116 83874	220k 5% 0,5W
3500		4822 116 52211	150Ω 5% 0,5W
3501		4822 050 11002	1k 1% 0,4W
3502		4822 116 52257	22k 5% 0,5W
3503		4822 116 52257	22k 5% 0,5W
3540		4822 116 52284	47k 5% 0,5W
3541		4822 116 52231	820Ω 5% 0,5W
3542		4822 116 52263	2k7 5% 0,5W
3543		4822 116 52283	4k7 5% 0,5W
3544		4822 116 52257	22k 5% 0,5W
3545	⚠	4822 052 10478	4Ω7 5% 0,33W
3560		4822 050 11002	1k 1% 0,4W
3562		4822 116 52283	4k7 5% 0,5W
3563		4822 116 52283	4k7 5% 0,5W
3601		4822 116 52238	12k 5% 0,5W
3602		4822 116 52238	12k 5% 0,5W
3603	⚠	4822 052 10229	22Ω 5% 0,33W
3604		4822 116 52303	8k2 5% 0,5W
3606		4822 116 52238	12k 5% 0,5W
3607		4822 116 52238	12k 5% 0,5W
3700		4822 116 83874	220k 5% 0,5W
3701		4822 116 52257	22k 5% 0,5W
3703		4822 116 52257	22k 5% 0,5W
3706		4822 116 52257	22k 5% 0,5W
3709		4822 116 52257	22k 5% 0,5W
3710		4822 116 52257	22k 5% 0,5W
3712		4822 116 52257	22k 5% 0,5W
3713		4822 116 52257	22k 5% 0,5W
3715		4822 116 83864	10k 5% 0,5W
3716		4822 050 11002	1k 1% 0,4W
3717		4822 050 11002	1k 1% 0,4W
3718		4822 050 11002	1k 1% 0,4W
3719		4822 050 11002	1k 1% 0,4W
3720		4822 050 11002	1k 1% 0,4W
3723		4822 116 52257	22k 5% 0,5W
3725		4822 050 11002	1k 1% 0,4W
3726		4822 050 11002	1k 1% 0,4W
3727		4822 050 11002	1k 1% 0,4W

COILS

5010	4822 157 62552	2,2µH
5300	4822 157 71086	4,7µH
5301	4822 157 71086	4,7µH